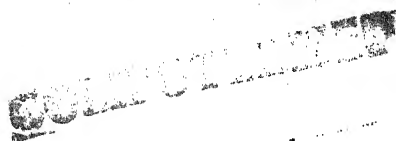
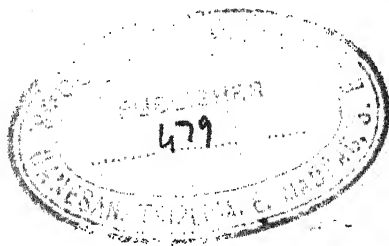


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BY

WILLIAM A. WHITE
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PREFACE

The investigation of the problems of medicine from the standpoint of man as a group of organs or systems of organs has not, perhaps, yielded up all the secrets which are possible to get at from this point of view. Such a concept, however, has long since ceased to express what the more advanced thought has to offer as to the nature of man. The concept of man as a grouping of organs and tissues which work together in harmony and constitute him an individual implies that as such he is obviously separate from other individuals, except for the more or less quasi union in society, and of course quite separate and distinct from all other elements of his environment. It also implies that so far as man as an energy container is concerned, that he, in his individual capacity, is a closed system. Man, in other words, may be studied by himself quite apart from other men, the rest of organic creation, or nature, in the larger sense.

This way of thinking of man belongs to the materialism of the last century, a materialism that was literal, that meant just what the word said, namely, that everything, in the last analysis, was to be explained in terms of matter. The investigations of the constitution of matter, however, had not proceeded much beyond the atomic hypothesis of Dalton, the electronic constitution of matter was not even foreshadowed, and so the concept of matter as such had hardly at all been invaded by the concept of force or energy.

In yet another way is this materialistic or organic way of thinking of man crude and out of touch with the best in modern thought. To the extent that it emphasizes man's distinction and separateness from his fellows and from nature in general, although it must be said that it renders lip service to the idea that man is a part of nature, it but emphasizes a human weakness—his egoism and his lust for power. Man has always believed himself to be the center of creation, the most important of all living creatures, god-like in form and qualities. It is probably largely if not altogether because of this egocentric delusion that the overthrow of the Ptolemaic cosmology by Copernicus and Galileo was so difficult—man resented occupying any place other than the center of the stage. This resentment repeated itself when

Darwin emphasized his community with other animals, particularly the primates, for that was striking close to home, indeed, and later when Freud showed his community with his fellows even in his most intimate and personal possessions, the mental.

Now, I believe, we are prepared and the time is ripe for yet a further step in breaking down the barriers that have served and are serving to separate man, in his thinking, from the rest of nature. Furthermore I think it of the utmost importance that these barriers be demolished because I think they confine man in his concept of himself to limits to which he can no longer afford to be restricted. In other words, I believe there are problems now awaiting solution which cannot be solved so long as they must be approached by methods restricted by these self-imposed limitations.

These problems I refer to belong in what I call the great silent places of medicine. They have resisted solution for centuries and it is worth while giving consideration to the possibility that they have so long resisted solution because the methods applied to their solution were by their very nature incapable of bringing about the desired results.

The progress of science has always been closely associated with the invention of new instruments and their elaboration and refinement (such as the spectroscope), or the introduction of new methods (such as dissection rather than speculation for determining the structure of the body). Thought is itself a tool with which we cut into reality by means of concepts, hypotheses, points of view, and the way we use the various tools at our disposal is our method. May it not perhaps be worth while to see what the natural sciences have to offer by way of new tools and new ways of thinking that would be valuable for the consideration of man from the standpoint of medicine?

The new point of view I have in mind is first that man is not separate and distinct from his fellows or from the other components of his environment, that he is only a place, so to speak, where for the time being certain forces are nucleated, and that as these forces, as it were, grow out of the environment they resolve again into it. Secondly, that so far as man is a container of energy he is not a closed but an open energy system, constantly receiving energy *from* the outside, constantly giving up energy *to* the outside. And thirdly, that in considering man it may be useful, and I believe it is, to consider him in terms of energy rather than in terms of organs. This way of thinking of him, I am sure, will go a long way towards

eliminating the annoyances of such pseudo-problems as mind and body, disease and health, and a lot of other static formulations.

A Preface is not the place for tracing the consequences of such a new method (of thinking) in detail but I cannot refrain from suggesting a few in order to emphasize its importance and for the further purpose of giving added significance to the chapters that are to follow.

For example, referring again to the nineteenth century materialism. This involved not only a materialistic conception of life but a mechanistic conception which implied that every reaction to a stimulus was dependent upon a developed mechanism intended for just that purpose. Aside from the fact that, considering the number of possible stimuli, this gets us rapidly into the position of assuming a mechanism with practically infinite possibilities, the difficulties of accounting for such a complex mechanism become more than embarrassing when we see adequate responses to stimuli that have never before been received by the organism and for which, therefore, the organism could not conceivably have developed an adequate mechanism. It has been suggested¹ that what really happens is that the energy system of the organism is acted upon by the energy of the stimulus and the resulting reaction is the result of the flow of energy toward an equilibrium. Kohler gives an excellent example to illustrate this concept. The old way of steering an ocean liner was to move a rudder, perhaps twenty feet square, by powerful electric motors operating through heavy chain connections. Now a very small section is cut out of the rudder, so small as to be easily movable. This is moved and by destroying the equilibrium on its two sides the force of the water impinging on the rudder turns it. In other words, the result is effected in the course of reestablishing a state of equilibrium that had been disturbed.

Many medical problems receive a new meaning when man is looked at as an energy system. Death is the final equilibrium between the system and its surroundings: disease and health are states in which the energy is either predominantly on the constructive, creative side or the destructive, death tending side of the books: mind and body are manifestations of energy at the physiologic or the psychologic level respectively: a tumor, like a delusion, is a manifestation of energy

¹ Kohler, Prof. Wolfgang. *Biology and the principles of physics*. Paper read at the annual meeting of the National Academy of Sciences, Washington, D. C., April 25-29, 1925.

which has escaped control of the integrated organism and its dynamic gradients: the irritation that is supposed to be etiologial in the production of cancer is the addition of energy at a given point until the cells at that point have accumulated enough to start out for themselves, so to speak, and so forth.

One other important consideration. The practice of medicine occurs in the setting of the physician, the patient, and the relations between them. What passes between them can only be thought of in the final analysis in terms of energy. This relationship needs very much to be carefully studied from the point of view of the intelligent and most efficient utilization of this energy for the benefit of the patient. The doctor, in my opinion, is but the representative in the flesh of man's desire for physical immortality, called into existence (supply) by his wish to go on living (demand). Think for a moment of what an enormous fund of energy must be back of this wish and of the possibilities for the patient if we could learn to really mobilize it effectively in his interests!

One of the sterilizing traditions which have prevented an adequate understanding of the organism as an energy system has been the tradition of the five senses as the only channels through which stimuli operate and the exceedingly naïve concept of the nature of these stimuli. Aside from the fact that there are something over twenty specialized receptors of stimuli *known*, the idea that the auditory apparatus is only sensitive to sound vibrations, the eye to light vibrations, falls far short of the facts. The special sense organs are the final forms of millions of years of adaptation to stimuli and only a moment's consideration will be enough to realize that much more than sound is appreciated through the ear—sound which issues in the form of verbal symbols and their combination into sentences form one of the most complex types of both emissive activities on the part of the speaker and stimuli for the hearer. Here is involved the whole subject of language. In addition to symbols and their various meaning values there is the host of affective possibilities of sound which derive their significance, like the meanings of words, from the whole phyletic background of experience. In fact that whole type of knowledge which we know as intuitional and which has quite generally been much underestimated in importance undoubtedly derives much of its significance from affective stimuli the actual nature of which is largely unknown.

Just as we are in constant receipt of energy from stimuli from

these various sources the full significance of which can only be realized in terms of the phylogenetic history of the sense organ involved so we are giving out energy in equally varied forms the meaning of which can only be realized by a study of the whole situation including its historical background.

If we come to a consideration of the human organism from this viewpoint that regards it as an energy system we must then necessarily think of its different states of disease, for example, as states of special energy stress or tension, which, because of the way the organism is trying to utilize the energy manifest themselves particularly in certain organ regions. The organs then come to have a meaning, not as independent affairs of their own, but as mechanisms for handling energy of a certain kind or in a certain way or both.

Aside from the different pictures we get of the organism itself when we come to look at it in this way we also get quite a different picture of the organism in relation to its environment. So long as man considers himself from the standpoint of his egotism as the center of the universe he can have no adequate estimate of the real place he occupies, of his relation to his fellows or to the rest of his environment, organic or inorganic. Man can not be understood as separate from the rest of nature of which he is a part. His relations to his fellows are perhaps of the greatest significance and can be thought of readily in terms of energy—the conflict between man and man, competition in business and between nations, are but struggles for acquiring power, in other words energy. The struggle for existence which in the materialism of the last century was a struggle for matter—food—has in this century, with our new understanding of matter, become a struggle for energy. The relations which he bears to the fellows of his own tribe, to the various animals he surrounds himself with and which he cultivates for food, work, companionship, are an example of symbiosis on a large scale which phenomenon is dependent upon a *quid pro quo* in energy exchange. Pathogenic organisms are sources of energy which are dangerous to man but when they are considered solely as enemies much that is important may be lost sight of. In the first place, as has been frequently emphasized, they operate as selective agents. And in the second place because they are destructive they automatically set energy in operation against them (action vs. reaction) and this reaction is often not even realized as existing much less studied for indications as to how adjustment might be best effected. For example, gonorrhoea is

usually regarded as 100 per cent evil in its consequences and yet I venture to suggest that it sterilizes much more intelligently than the hereditarian and eugenist is at present prepared to. I mention this instance because it is a good example of a very considerable series of problems that receive adequate consideration only from one side. An energy point of view would make it difficult to be satisfied with isolated phenomena, the whole system of which they were parts would be more apt to come in for consideration, and certain positive aspects of disease, or perhaps, more properly, of the reactions of the organism against disease that would be thrown into high relief.

The essays that follow were written at various times but are sufficiently related I believe, to be put together, based as they are upon the point of view here outlined. Unfortunately there are, here and there, some minor repetitions, but it is hoped they are not sufficient to materially detract from the form of presentation.

Grateful acknowledgment is hereby tendered the several journals which have permitted me to reprint here the essays that have previously appeared in their pages. A footnote in each instance gives the place of original publication.

W. A. W.

WASHINGTON, D. C.,
June 24, 1925.

I

EXISTING TENDENCIES, RECENT DEVELOPMENTS AND CORRELATIONS IN THE FIELD OF PSYCHOPATHOLOGY *

In a thoughtful survey of the work which has been produced during the past few years in the field of psychopathology, one is perhaps first impressed with its quantity, and correspondingly, as is to be expected, with the great mass of material of negligible value and the few works that stand out as real, worth-while contributions. This state of affairs, though, is of course the rule, and is always to be expected except at times of unusual development such as generally follow a revolutionary new formulation, such as that of evolution or Darwinism. Of course, we are really living in such a time, and Freud's contribution may very properly be considered of as great importance to psychopathology as Darwin's was to biology, and the literature is now rich with contributions which have grown out of the stimulus of the psychoanalytic point of view. Still, standing as close as we do to his great work, we lack perspective somewhat, and are more impressed perhaps with the quantity of mediocre material which the stimulus has produced than the really more important fact, namely, that it has streamed through every aspect of the psychopathological realm and modified our whole method of thinking of these problems. At the same time similar tendencies of mind have manifested themselves in other departments of science and thought, and the two have often come together and reinforced each other.

When I say similar tendencies of mind I mean tendencies towards a dynamic approach to problems of science, of art, of philosophy, as opposed to the older, more definitely static ways of thinking of processes and things. Old distinctions, such as those between soma

* Presidential address, The American Psychopathological Association, Washington, D. C., May 1, 1922. *Jour. Nerv. and Ment. Dis.*, Vol. 56, No. 1, July, 1922.

and psyche and between normal and pathological, are breaking down and releasing new interests which are slowly, perhaps, but surely, profoundly changing the way of thinking of psychopathological problems.

While this is deeply true, still the outward form of psychiatry, that is, its nosological compartments, remain approximately the same and with very much the same labels. New methods of classification, more especially the mechanistic scheme of Kempf,(1) have not replaced that of Kraepelin. The terminology of Kraepelin continues its hold partly perhaps from inertia, but probably more because his terms present more or less concrete pictures to the mind, and whether those pictures be right or wrong, they are more acceptable than terms which are more abstract and vague, even though perhaps logically and scientifically more sound. The Kraepelinian classification seems to include a greater number of factors that are desirable than any other, and also to make certain concessions to practical needs that indicate that it will hold sway for some time to come.

While this is a general statement of the situation, as might be expected, there are certain tendencies which are visible in the literature which are not so simply stated, but which can perhaps best be understood when so backgrounded.

In the first place there are those who slavishly follow the Kraepelinian scheme, of course, more particularly where that scheme is most definite, as in the paranoia, manic-depressive, and dementia precox formulations. Bleuler(2) has very well pointed out the danger from such a restricted viewpoint in his criticism of Rüdín's(3) study of heredity in precox, more particularly by showing how his too rigid formulation of precox overlooks many larvated or undeveloped cases that never get into institutions, many who never develop a characteristic schizophrenic picture or remain well under exceptionally favorable circumstances, but all of whom may be the bearers of a germ plasm factor of precox significance.

On the other hand, there is the widest departure from Kraepelinian standards in the direction of dynamic interpretations as perhaps best exemplified by Kempf.(1) Most of the dynamic interpretations, however, the psychoanalysts in particular, retain the Kraepelinian captions as the most practical set of symbols. Between these two extremes there are all sorts of efforts, but the general tendencies indicate clearly a growing dissatisfaction with older static formulations and an increasing effort in the direction of a truly interpretative psychiatry.

From the point of view of the situation as I have thus stated it I will call your attention to certain indications of these existing tendencies and to certain recent developments and correlations. My comments will necessarily be somewhat scattering and disconnected. I shall try to pick out of the mass of material of the last about three years particular things which I think to have significance in one way or another. First, to follow on what I have just been saying about heredity, I cannot pass without calling attention to the work of Kretschmer (4) in his study of sensitive ideas of reference, not so much to commend it, but for the purpose of calling attention to the general undercurrent of dissatisfaction with the old formulations which find expression in all sorts of new efforts, and I believe that even when these new efforts may be properly severely criticized, and for that matter discarded as representing no useful advance in themselves, still they represent a spirit of unrest which has a forward direction, and which, from this point of view, is a highly significant and important indication of what is going on in psychiatric thought today. I was minded particularly to speak of Kretschmer's work because there seems to be a basis, perhaps a slight one, for correlating it with results of certain biological experiments. Kretschmer believes that he has been able to group together a series of symptoms which he refers to as sensitive ideas of reference, and sees in that group sufficient coherence to warrant his believing that it has a fairly definite hereditary basis. In a recent conversation with Davenport, who is conducting experiments on the transmissibility of cancer in rats, he told me that it had been possible to develop two definite strains of rats, one of which was sensitive to the carcinoma cells, and when they were implanted developed a tumor, and the other of which was not sensitive, and when carcinoma tissue was implanted in this strain no growth followed. In other words, the hereditary factor in carcinoma is not, so to speak, in the carcinoma itself, but in the sensitiveness to certain kinds of noxæ, let us say, which makes it possible for an animal to develop carcinoma. We have a similar sort of reasoning in Kretschmer's work, or at least we can indulge in it if he does not, and we may ask ourselves whether in certain paranoid conditions there may not be a hereditary factor consisting of sensitiveness. I am aware that this is only calling old things by new names, and only a new naming of the old familiar predisposition. Even giving a thing a new name is not without its possible value, for when we come at an old concept newly labeled the new label is bound to appeal to a somewhat different apperceptive mass, and that

means that the old concept must of necessity take on new meanings. But then predisposition is no longer a useful concept, and in the light of the present confusion regarding what is and what is not hereditary, it seems to me quite worth while that analyses should be pushed into these unknown territories, and that what before was considered as an undifferentiated unit—I refer to predisposition—should now be broken up into various parts and the history of each part traced and its relations established. This may or may not be productive of results in this particular instance, but at least it is thinking about the problem rather than resting in a static formulation, and this precisely is the tendency of modern psychiatry, even though Kretschmer's work itself, standing alone, might hardly indicate it.

There are a number of other recent efforts in psychiatry that illustrate more or less the same principle, efforts which in themselves are frequently intellectualistic in type, and yet when looked at in their setting, and I mean by their setting the whole movement of modern psychiatry, they can be seen to be efforts which have been thrown to the surface by the underlying dynamic urge. Such a formulation is that of Schilder, (5) in his study of the psychology of mania, who looks upon mania as a reaction to unpleasant experiences, the purpose of which is to overcome painful emotions, thus constituting a defense reaction which has also the purpose of rendering the individual capable of new undertakings. This combination of pleasure and action the author speaks of as a "manic fluidum," which fluidum is stored in a reservoir from which it may be released on occasion. This is distinctly Spencerian, but the author really does make an effort at dynamic formulations, and his manic fluidum should only have the value of a figure of speech. He discusses the question of change of level, but thinks these changes of level are due to extra-psychic factors rather than to an unconscious. He very definitely also rejects the idea that functions can be thought of in a static and soulless mosaic.

Leaving this aspect of the question, let us return to the matter of heredity, and here I would call to your attention particularly the efforts that have been made in several directions to hitch up traits of character, or, as they might be called, types of action pattern systems in the personality make-up, with definite types of bodily configuration. During the war the French brought out what appeared to be, at least for the practical purposes of military classification, a very suggestive differentiation into digestive, respiratory, muscular, and

nervous types. More recently Kretschmer(6) has contributed a very suggestive study along these same lines, developing three bodily types, the asthenic, the athletic, and the pyknic. The asthenic and the athletic types tend to develop the schizophrenic types of psychoses, while the pyknic types tend to develop the cyclothymic reactions. Here the effort is distinctly to hitch up body types with psychotic reactions. This whole tendency is especially interesting, and perhaps has its greatest possibilities in connection with the development of our information about the endocrine glands, particularly those which control growth.

Most closely allied with this effort to correlate character traits with bodily structure have been the efforts to define more accurately the basic factors of character make-up itself after the manner which has been made familiar by the work of the psychoanalytic school. I am thinking more particularly of such work as that of Forsyth,(7) who has endeavored to trace the psychological simples of the infant mind in their unfoldings, complex interrelations, and disguised manifestations in the adult character. Then there are the efforts to define character types, to group the various psychological traits which hang together, to define the mechanistic basis for such groupings, and to attempt broadly to outline the life histories of such types, to define their possibilities, their limitations, and to indicate their main tendencies. Jung's work along these lines has been long known; I would mention his recently published book on psychological types,(8) which is a more detailed presentation and further elaboration of his views. Hinkle(9) has given us a similar presentation, which, though less extensive, is extremely interesting and full of valuable suggestions.

It will be noted that three distinct types of effort are in evidence. First, the effort to correlate character make-up with bodily make-up. Second, the effort to define character make-up itself; and third, the effort to correlate types of character make-up with types of mental disease.

Perhaps the most significant effort in the way of new formulations covering pretty generally the field of psychopathology is that of Birnbaum.(10) Birnbaum sees in the previous method of approach an effort "at seizing of the complete disease picture," and contrasts this method with that of "structure analysis" as the coming principle for research. The syndrome of the psychosis in its outward manifestation is often the product of a complex, many sided and varying coöperation of factors of different nature, endogenous and exogenous, mental and physical, functional and organic, which makes

necessary what Kretschmer recently called a "multidimensional diagnosis." Birnbaum speaks of the superstructure of the disease, which includes the components represented by the symptoms and course, the accessory conditions in which the disease arises, the processes from which it springs, and the factors by which it is conditioned. The cause and the form of the disease he would separate as the pathogenic and the pathoplastic phenomena respectively. With these factors are associated the general liability or predisposition (pathogenic tendency) or the tendency to a certain form of disease (pathoplastic tendency). The factors which set the disease in motion are the provocative factors. The task of future psychiatry is to set forth these various components, and their different influences in the disease picture. Birnbaum distinguishes endogenic, exogenic and psychogenic factors. The simplest cases may be composed of determinants of different character value, and the pathogenic and pathoplastic valency and the relations that these factors bear to each other are of great significance. For example, a disease picture may be conditioned pathoplastically, that is, the pathoplastic phenomena may obscure the true disease type, especially when condensation, transformation, symbolization, conversion, etc., are taken into account. As to prognosis, structural analysis diminishes the faith placed in the course of the disease by showing that the periodic course need not always be conditioned pathogenically, but may be caused pathoplastically. Further, the new point of view shakes the dogma hitherto held concerning the prognosis, namely, that is unalterably associated with the type of disease. The pathoplastic moment may be important for the prognosis. Kronfeld,(11) in his comments on Birnbaum's views, says that a disease entity can only be considered to exist where a systematic uniformity in a whole series of interrelated manifestations can be proved. Clinicians must proceed from external phenomena to the inner laws upon which they depend. Modern clinical efforts are in the direction of a general dynamic point of view extending beyond the pure method of ontological description. This is certainly thinking in the right direction.

As might be expected, the new direction cannot get away with it quite without criticism, and Stransky,(12) in discussing the whole problem of the new direction of psychopathology, supplies this criticism. He sees in this "new direction" a purely speculative philosophy with no concrete empirical grasp upon reality. It is an irrational, absurd "desk mythology." He is willing to let the philosopher alone so long as he keeps within the field of metaphysics, but when he

invades the field of psychopathology Stransky would cry "Hands off!" Stransky's real bone of contention is that too much psychiatry is getting away from the patient, and he strikes a very healthy note of warning when he speaks for a closer alliance of our thinking with our actual clinical contacts. And while I am on this point let me pay tribute to American psychiatry and to our late distinguished colleague and friend, Dr. Hoch, whose death has been so material a loss to psychiatry in this country, and not only to psychiatry, but to psychiatrists, because his relation with all of us was so closely personal. I refer to his work on Benign Stupors, (13) which was brought out posthumously as a result of the labors of another one of our members, Dr. MacCurdy, to whom we all owe a debt of gratitude for the very excellent and painstaking completion of what must have been an extremely difficult task. This work of Hoch shows very clearly how the speculative side of psychiatry, of which Stransky complains, and the clinical side can be brought into fruitful relations. Kraepelin, it has always seemed to me, could properly be said to have brought descriptive psychiatry to the highest point of excellence and progress in this direction beyond Kraepelin would be merely a matter of working out minor details. If, however, we turn to Kraepelin's descriptions of the psychoses, we find there an enormous mass of symptoms brought together under various headings, but almost altogether as separate and distinct affairs out of relation with any particular patient who may have manifested them. It is a method with which we are familiar. The fever curve of typhoid fever is discussed entirely apart from any particular patient, the variations which it may show are recorded and charted as a separate entity. Hoch was one of the first psychiatrists in this country to appreciate that this method of dealing with the symptoms had taken us as far as we could go, and that from now on the development of psychiatry would have much more to say about the human problem involved in each particular patient and that symptoms would have to be considered, if they were to be deeply understood, in their settings, a term with which I know you are all quite familiar. In his "Benign Stupors" Hoch has kept close to the clinical facts, but he has not been afraid to look at those clinical facts from the point of view of the theorizers, the speculators, or what not, against whom Stransky has hurled his criticisms. With the microscope of the analytic school Hoch has found things in his patients which he never could have found had he used only the naked-eye vision, such as that developed in Munich.

Leaving these more general matters, let me call attention to a few more concrete, specific instances of accomplishment in various fields. First, I would mention Mott's(14) study of the tests of precox cases, in which he demonstrated a complete arrest of spermatogenesis and a more or less regressive atrophy. These findings are significant in view of the deficient potency of so many of these patients—a clinical fact with which I have no doubt you are all familiar, and which indicates to my mind that the precox individual may really be considered as essentially defective, at least in the psychosexual field. This is interesting in connection, for example, with the observations of Fay.(15) His schizophrenics, who were introverted without projecting their impulses, were sub-myxedematous, while he found hyperthyroids as a whole inclined to be extroverted and to keep in closer contact with reality than other types. We are reminded by such observations of Kraepelin's early indictment of the thyroids and gonads in precox. These findings of Mott are in line with what has been found by other investigators; for example, Hauck(16) has found among precoxes general infantilism relatively frequent, and genital infantilism in female patients, especially in association with the catatonic form, while Lewis has found, at St. Elizabeths Hospital, marked aplasia of the circulatory system manifested by very small hearts and aortic arches.

Another recent research is that of von Monakow(17) and Kitabayashi(18) on the choroid plexuses in precox. They believe that they play a considerable function in this group of cases. Aside from their function of secreting cerebrospinal fluid, they believe they act as selective filters for the products of metabolism and endocrine secretions. Their function, therefore, is to neutralize, detoxicate, or transmit the products of internal secretion so far as they have to do with brain functions. Emotional upsets, the maintenance of strong passions for long periods, attended as they are by excess productions of the glandular secretions, make heavy demands upon the plexuses. In all of the twelve cases examined degeneration was found. They believe that in all similar conditions diseased conditions of the plexuses will be found, and that all higher mental processes are the product of the continuous coöperation of the glandular and central nervous systems, particularly the cortex. Morowoka,(19) working in Mott's laboratory, contradicts these findings, at least so far as they refer to dementia precox.

In the toxic-infectious group of psychoses the largest literature has been supplied by lethargic encephalitis. You will remember that

Kraepelin, in years past, endeavored to discover whether there might not exist in the various toxemias and infections a specific type of reaction at the psychological level, whether, for example, there might not be a difference between the mental picture of the delirium of pneumonia and of typhoid fever. In spite of the fact that alcohol, on the one hand, particularly in the Korsakoff syndrome, and syphilis, on the other hand, as paresis, did give us a certain symptomatology which was sufficiently characteristic to warrant the hypothesis of psychological specificity, still on the whole Kraepelin's efforts have been futile, and it has come to be believed that the symptomatological gamut of the disintegrating neuron was relatively short, that it was characterized more especially by delirium or deliriod reactions or confusion, and that it made no difference what the causative factor might be which tore down the structure of the neuron, the symptoms were the result of this disintegration of structure and not of the forces which produced it. From two directions I seem to see that this position can no longer be satisfactorily maintained, and that perhaps we shall have again to acknowledge the wonderful prevision of Kraepelin. In the first place, the generic type of symptom, such as delirium due to toxic or infectious factors, has been increased in number. We not only have delirium, deliriod reactions and confusions, but affect and mood disorders, schizoid reactions, convulsive reactions, Korsakoff-like reactions, paranoid trends, but more recently, and this is the particular thing I have in mind, a new symptom complex has been described, which belongs in this category of, so to speak, generalized symptoms, namely, the symptom of distressed perplexity, described by Hoch and Kirby.(20) The other direction which I mention is that pointed by the symptomatology of lethargic encephalitis. There are indications that the qualitative specificity of the psychic symptoms is greater in this disease than for the general run of toxic and infectious states, and perhaps as great as for the analogous infectious organic disease, paresis. I would call your attention particularly to the psychological reactions found in this disease by Hohman,(21) particularly such reactions as (a) push of talk without distortion, (b) surprising alertness on arousal from stupor, and I would add the lethargy itself.

Perhaps the epidemics of influenza and encephalitis in recent years have served to materially aid in bringing about a rapprochement between neurology and psychiatry which in the past have been entirely too independent, not to say condescending, of each other. There have been a number of studies appearing in the literature lately

which indicate that the two disciplines are gradually drawing closer together. I will mention only one, the paper by Fränkel(22) on the psychiatric significance of disease of the subcortical ganglia and its relation to catatonia. He calls attention to the long estrangement of neurology and psychiatry, but indicates how they have been coming together of late years in the consideration of the aphasia and apraxia problems and frontal tumors. He now comes forward with a considerable group of neurological conditions involving the basal ganglia, particularly the striatum, which have associated with them mental symptoms. This group includes pseudosclerosis, Wilson's disease, athétose, torsion spasm, strangulation, carbon monoxide poisoning, and catatonia. He no longer looks to the cortex alone for the explanation of mental involvement, but believes that alterations of the psychic life may be the direct result of disease at the basal ganglia level. Most of the disturbances at this level seem to have a large motility component, and it is not difficult to see how any profound interference with the machinery of expression might show at the symbolic level. I have on several occasions called attention to the value of certain work, particularly Kempf's, from this point of view, namely, its ability, because of a common terminology, if nothing more, to bring the organicist and the functionalist together on common ground.

In the field of the epilepsies I would call your attention to Bolten's(23) article on epilepsy and tetany, in which he discusses the influence of the thyroid and parathyroid glands upon the development of convulsive disorders, but more particularly to Curschmann's(24) criticism of Bolten, wherein he takes the occasion especially to comment on the whole subject of calcium metabolism, not only in relation to tetany, but in relation to epilepsy. The deprivation of calcium, as a result of faulty control of its metabolism, resulting in an increased sensitiveness of the cortex and epileptic and spasmophilic responses as a result.

At the psychological level Clark's(25) observations on the nature of the disturbance of consciousness in the epileptic fit deserve mention. The nature of this disturbance is a gradual retraction of the field of object consciousness with a corresponding intensification of subject consciousness. This description is on all fours with the description of the state of mind of the soldier by Bird(26) in his study of the psychological changes that took place from the time the soldier left home to the time that he went over the top. He reached quite the same sort of conclusion, namely, that there was a gradual

falling away of objective interests with a corresponding intensification of interest in self, until at the moment of charge the external world had been practically contracted to a pin-point, as it were. And, finally, there is to be noted the increased acceptance of the idea that essential epilepsy is a total life reaction.

With regard to that exceedingly obscure region, the involution period and the presenium, there has been quite a considerable literature. The problems involved here are exceedingly complex, but their nature and their relations are beginning to be better appreciated and the process of the dismemberment of the psychoses in this chronological period has begun. Without undertaking to discuss the problems that are presented by this group of psychoses, I will pass over this period with simply giving a few names of syndromes which have been described and which will be in themselves sufficient to indicate somewhat of the nature of the efforts which are being made for the dismemberment of the psychoses of this region. There is the involution paranoia of Kleist,(27) the involution paraphrenia of Serko,(28) the presenile paraphrenia of Albrecht,(29) and the paranoid psychoses of advanced years of Seelert.(30)

In the field of psychoanalysis I would particularly call attention to the growing importance of narcissism and to the studies which have recently been made of the narcissistic psychoses, and the appreciation that much of the difficulties which have been encountered heretofore in the more malignant types of neuroses and psychoses have been due to narcissistic fixations. The important point is that the self-interest becomes emotionally loaded and that the emotional load contains a libidinous component, and therefore the self becomes the love object. Particularly the paraphrenias have been approached from this viewpoint, and it is perhaps worth noting in passing that the psychoanalysts show a tendency to use the term paraphrenia for the entire precox group rather than limiting it, as Kraepelin has, to the paranoid types.

Freud(31) has also studied the melancholias from this narcissistic viewpoint, and believes that the mechanism is a withdrawal of the libido from its object, but that instead of transferring it to a new object, as in the normal mechanism, or introverting it on to unconscious phantasies, as does the neurotic, or applying it to the ego, as the paraphrenic does, the melancholic replaces it by a narcissistic identification of self with the former object. The libido is withdrawn from the object and the object is built up within the ego itself; that is, it is, so to speak, projected upon the ego, or I should prefer

to say, it is introjected. The explanation of this mechanism is that it probably represents a regression to the original narcissistic way in which the patient fell in love. The ego thus becomes split, and one part to which consciousness adheres can thus criticize, hate and abuse the other part formed by a fusion with the idea of the object. In other words, one part of the ego can treat the other part as object. Thus suicide becomes understandable as an attack upon that aspect of the ego that is identified with the object, both loved and hated (ambivalence). In this connection I would mention also Ferenczi's very stimulating and suggestive paper on tics, (32) in which he considers this hitherto puzzling group of rather ill-defined motor manifestations from the point of view of narcissism and suggests some very interesting correlations with other motor syndromes, such as the stereotypies, mannerisms and catatonia.

Another notable contribution in the psychoanalytic field is that of Ferenczi's (33) so-called "active therapy," to which Freud (34) has given his adherence. Briefly stated, active therapy implies that the patient during the analysis should, relatively speaking, remain continent. This does not mean continence in the usual sense of the term, that is, sexual continence, but abstinence from sources of satisfaction which are substitutes for the repressed desires, and which therefore constantly relieve the tension of repression, making the patient more comfortable and correspondingly decreasing or lessening his desire to be relieved from suffering. Continence is advocated in order that all of the energies of the individual which are capable of being utilized to effect a cure shall be focused to that end rather than be drained in the course of the analysis in various substitutive activities. This is a move in the direction of a more active interference on the part of the analyst than has heretofore been the rule.

I cannot close this review without reference to certain developments in allied and closely related fields. I refer particularly to the fields of neuropathology, neuroanatomy, and neurophysiology. In the first of these fields, namely, that of neuropathology, Brouwer's (35) work on the significance of phylogenetic and ontogenetic studies for the neuropathologist is an exceedingly stimulating study, and shows very well how certain symptoms of which we have had no adequate understanding in the past may receive their explanation when the nervous system is studied not only from the topographical point of view, but from the historical, the developmental and the functional point of view, and I would emphasize that

I mean by functional not the topography of function, but function in its broader sense, as an aspect of an integrated whole, not only in its spatial but in its temporal relationships.

In the field of neuroanatomy I would mention particularly Kappers'(36) work on neurobiotaxis and Child's(37) exceedingly stimulating little book on the origin and development of the nervous system from a physiological viewpoint. Perhaps of most importance, however, in this whole field of neuroanatomy, is the magnificent and exhaustive work of the Dutch anatomist, Winkler,(38) who designates his great anatomy of the nervous system as an effort at a grouping of the tracts and the centers of the nervous system, by which the various sensory impressions can be translated into reflex reactions, into a physiological ensemble. This surely is a long way from the old fashioned topographical anatomy.

In the field of neurophysiology I think the work of Hunt(39) on the double innervation of the voluntary musculature is of great importance in helping us to understand and to interpret the mechanism of emotional expression.

And as correlating these fields of neuropathology, neuroanatomy, and neurophysiology, I may close by mentioning the work of Groddeck(40) and Jelliffe(41) in their efforts to determine the symptoms at the psychological level of chronic organic disease, and the deeper significance which has thus been given to what has been known as archaic symbolism, with the possibilities which a real understanding of the true significance of this type of symbolism may have for future developments along these lines. I have attempted to formulate my understanding of archaic symbolisms in a halting and, I recognize, a very unsatisfactory way in my *Foundations of Psychiatry*.(42)

And finally I would emphasize a point of view which I believe to be of prime importance, and to which I have devoted a chapter in my *Foundations*, namely, the point of view that psychopathology must more and more recognize man as a social animal, and that the psychoses cannot be fully understood except as it is recognized that they are disturbances of man as a member of the herd, or, as I have formulated it, the field of psychopathology is at the individual-society level. Only by an understanding of what is implied by this formulation can we proceed safely along the many ways that recent sociological efforts are opening up. This practical development along social lines is one of the most important of all the trends of the

day in our field, but it has such wide and varied significance that I do not feel it possible to more than mention it in an address of this sort. It deserves a special treatment.

A legitimate proof of the value of any new way of thinking in any particular field of human endeavor is the evidence that can be brought that that same way of thinking is growing up simultaneously in other fields. I have already intimated that such proof could be brought, but if you ask me to point the evidence I will suggest that you read Elie Faure's *History of Art*.(43) Here you will find art treated, not as a series of chronologically grouped products, but as a living whole, pulsing with the life of the peoples and as their expression of that life's meanings. As another example, I come to a system of formulations that have, during all time, been looked upon as the essence of finality. I refer to mathematics. Now comes relativity(44) and the stronghold of all the certainties is shaken.

Such examples as these give most stimulating glimpses of possibilities that are being opened up to us through these new pathways that the mind is making for itself, transcending its old limitations and recreating itself. To the chosen few this is nothing new, but in an age when still the majority of those who contact at first hand with the mental case not only think in terms of "insanity," "incoherence," "craziness," and the like, but when some writers even decry any effort at reading meaning into the symptoms—Küppers(45) says that instead of trying to find meaning for this meaningless behavior the same meaningless factors should be sought for in normal life—it needs a mighty propaganda. Thus does the field of psychopathology invite us, offering us premiums far greater than ever before. Not only are there facts to be discovered, but because of the advance in general science in all directions, these facts have much broader possibilities for correlation than ever before, and then because of the new way of thinking about facts their significance will be much more profound.

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II

THE COMPARATIVE METHOD IN PSYCHIATRY * (PSYCHOPATHOLOGY)

Psychiatry is, of course, not a science. It is a department of medicine and as such its dominant note is practice, or more specifically treatment. Its subject matter is the diseases of the mind. Psychiatry is, therefore, that department of the practice of medicine that deals with the treatment of mental diseases. I have used the word treatment alone in defining the function of psychiatry rather than attempt to include such other notions as are expressed by knowledge of causes, course, pathology, etc., because all of these are secondary and contributory to treatment. Psychiatry is, therefore, like medicine in general, an art rather than a science, and like general medicine an art which attempts to utilize the material of many sciences. The principle sciences which are called upon by the practice of medicine are anatomy, physiology, and chemistry, particularly human anatomy, human physiology and human chemistry, and certain aspects of certain other biological sciences in their specific human applications such as embryology, bacteriology, and heredity. Most important and specific in its contribution is that department of anatomy that deals with the structure of the diseased body, pathology, and especially the pathology of the tissues, histopathology. In psychiatry the relation of practice to the various sciences is quite similar except that psychology needs to be added. The organic pathology that is most important for psychiatry is naturally the pathology of the nervous system, neuropathology, while it is the department of psychology that deals with abnormal mental conditions, namely, psychopathology, that makes the most specific contribution and is the science that is most characteristic of psychiatry.

All this is descriptive of psychiatry, as it is generally thought of, as it has been in the past, and, for the most part, as it is to-day.

* Jour. Nerv. and Ment. Dis., Vol. 61, No. 1, January, 1925.

Psychiatry as a body of scientific facts or, more especially, that part of psychiatry that consists of the scientific facts upon which treatment is based, particularly pathology in general and psychopathology in particular, is still largely in the descriptive stage of development. All science must go through the stage of collecting, describing, and classifying its material, and for the most part psychiatry rests there. The interpretative stage of science must naturally come later. Now science attempts to "explain" its facts, that is, it attempts to tell *how* they have come to pass.¹

This explanation by science of the *how* of events was enormously facilitated by the theory of evolution which introduced the fundamental conception that every event grew out of the events of the past and in its turn was doing its part in bringing about the events of the future. Every event or thing, every animal or plant, human institution, belief, or custom must have had its history, which, if it could be known, would furnish a complete explanation for its present state of being. In the same way, if the present could be fully known the future could be predicted. Put in other words, this is the principle of "efficient causation" that assumes that every event is in some way contained in the preceding events, or more specifically, in those events that invariably, that is, of necessity, precede it.

This feeling that nature is a constantly evolving system in which any given state of affairs can only be explained by its historical past has given a great impetus to any latent tendency to compare the similar and to differentiate the dissimilar. This perception of similarities is a process which is part and parcel of the development and evolution of thought, but when it was made conscious it became then in large part the groundwork of the comparative method in science.

The comparative method is employed just so soon as the explanation of an event is sought by means of observations of similar or related events. The ideal laboratory experiment seeks to vary one factor in the situation while keeping all the others constant. Any change in the final result can therefore be traced to the factor that has been varied. In nature that cannot be done. The comparative method, however, is an approximation to the laboratory ideal. By observation of many similar situations it can often be seen how variations in one series of events is accompanied by variations in another series. When this is found to be the case, and especially

¹ Hobson, E. W. The Domain of Natural Sciences.

when it is further found that this relationship is invariable, when one series of events always precedes and the other follows, and when, in addition, the relation is a quantitative one, that is, the greater the former the greater the latter, the dependence of the one series upon the other is fairly evident and we are justified in assuming a relationship of cause and effect.

This is a description of what I conceive to be the essentials of the comparative method as a way of thinking, as a process of arriving at results. As a matter of fact, we are familiar with the comparative method not only as a process but as having a certain content. I mean by this that we are familiar with the fact that in the biological sciences these comparisons are characteristically made as between different species of living forms; between forms of life occupying different positions on the phylogenetic tree, that is, often between living and fossil forms; and between the different stages of development of the same form. The sciences that have developed along these lines are particularly anatomy, morphology, and embryology, but all the sciences, including the mental and social sciences and religion, have to use the comparative method.

Much of our common scientific knowledge, particularly in the field of the biological sciences, is the result of the use of the comparative method. For example, we might examine a particular specimen of a human appendix or the gill slits of a particular human embryo everlastingly without even suspecting what they were, their meaning, or how they came to be. It is only the comparative method that is competent to clear up the riddle.

The comparative method has lately been coming into recognition in fields more or less closely related to psychiatry. I have particularly in mind in the field of neuroanatomy the work of Kappers and his theory of neurobiotaxis.² This theory was developed to account for the position of the nuclei of the medulla as a result of the comparative study of their locations in a wide variety of animals (lamprey, shark, fish, amphibian, reptile, bird, mammal); and in the field of neuropathology the work of Brouwer,³ who demonstrated that certain symptoms of multiple sclerosis and of various types of paralysis can be explained on the general principle that it is the younger portions

² Kappers, C. U. A. Phenomena of Neurobiotaxis as Demonstrated by the Position of the Motor Nuclei of the Oblongata. *Jour. Nerv. and Ment. Dis.*, Vol. 50, No. 1, July, 1919.

³ Brouwer, B. The Significance of Phylogenetic and Ontogenetic Studies for the Neuropathologist. *Jour. Nerv. and Ment. Dis.*, Vol. 51, No. 2, February, 1920.

of the nervous system that are more vulnerable to noxious agents. The existence of certain symptoms and their presence rather than others, for example, the loss of the abdominal and not the knee reflex in multiple sclerosis, receive their explanation when the relative age of the affected parts is determined, and this quite obviously requires the comparative method of inquiry.

The comparative method has also been coming to the fore in the study of the functions of the central nervous system. The laboratory experimentation in the production and study of decerebrate rigidity⁴ can be viewed as an attempt to uncover the functions of certain phylogenetically older portions of the central nervous system by experimentally cutting off the influences that normally modify them from higher and more recently developed regions. A recent attempt at an explanation of the epileptic convulsion⁵ is along the same lines. Rosett believes that the higher centers are temporarily out of commission, and this state of affairs, that I think might well be called functional decerebration, releases the lower centers from the inhibitory control normally exercised from above, and that the convulsion can be largely explained as the result of this release. Hunt's work on the functions of the corpus striatum⁶ also belongs in the category of recent research in the functions of the central nervous system with the use of the comparative method.

Much more might be said along the same lines, but enough has been offered to show that the comparative method has been working its way quite definitely into the nearby territory of psychiatry. Let us now turn to more definite psychological regions. In the first place, psychology itself has only lately been rescued from the traditions of medievalism and come into recognition as a biological science in the true sense of the term. In fact, it still carries some of the flavor of its long association with metaphysics and philosophy. Nevertheless psychology has long recognized the value of the comparative method, as witness genetic psychology and animal psychology. When we come to that application of psychology to the field of psychiatry, that section of natural science that is most characteristic of the scientific

⁴Walshe, F. M. R. The Decerebrate Rigidity of Sherrington in Man. *Am. Arch. Neurol. and Psychiat.*, Vol. 10, July, 1923.

⁵Rosett, J. The Mechanism and the Fundamental Cause of the Epilepsies. *Am. Arch. Neurol. and Psychiat.*, Vol. 9, June, 1923.

⁶Hunt, J. R. Primary Atrophy of the Pallidal System of the Corpus Striatum. *Arch. Internat. Med.*, Vol. XXII, November, 1918. Progressive Atrophy of the Globus Pallidus. *Trans. Am. Neurol. Assn.*, 1917. The Static and Kinetic Systems of Motility. *Trans. Am. Neurol. Assn.*, 1920.

armamentarium of psychiatry, namely, psychopathology, the story is somewhat different. Here the recognition has been slow to come about, and as a matter of fact most of the psychopathological work of the present is still engaged in description and classification. It remained for the psychoanalysts to insist upon the necessity of a historical study of the symptom.

More recently, however, largely as the result of the impetus of the psychoanalytic movement, without doubt, the historical method has come into play more and more in the consideration of psychopathological symptoms. In fact, there is a considerable body of thought growing up about the attempt to interpret the symptoms of the psychoses that recognizes, more or less fully, the comparative method as a valuable and necessary way of approach to their understanding.

An analogy at this point may not be out of place. The basic sciences upon which psychiatry draws are psychology as over against anatomy and physiology, and psychopathology as against pathology. Psychology includes both the structure and functions of the mind quite as do the combined sciences of anatomy and physiology deal with the structure and functions of the body, only in the realm of psychology structure is referred to as content and function as process. The content of thought and the process of thinking are the usual expressions for this differentiation.

With this analogy in mind I would draw another parallel between the progress of thought in the fields of general neuropathology and psychopathology. In the past interest has been preponderantly centered about the content of thought rather than its process, and upon the sensory or perceptual aspect of the psyche rather than upon the motor, emissive, or expressive side. The motor aspect of the central nervous organs, and particularly of the psyche, have received scant attention except in so far as they have related to the pyramidal tract system and the spinal and cranial motor nerve pathways. These more recent acquisitions to the nervous apparatus have been almost all that have been known until quite recently. All this is being rapidly changed now, as witness the work of Hunt,⁷ already referred to, and the recent monumental work of Jacob⁸ on the extrapyramidal disorders of motility. In quite as complete a way have the motor manifestations of mental illness been overlooked and the emphasis

⁷ Loc. cit.

⁸ Jacob, A. *Die extrapyramidalen Erkrankungen*. Springer, Berlin, 1924.

of interpretation been placed upon the explanation of the delusion and of sensory falsifications. Content of thought has attracted the almost exclusive attention of the investigator, while the process has gone largely unheeded: the ideational and perceptual aspects of thought have commanded much more attention than the emissive aspects and the end products as expressed in muscular motions, attitudes, visceral tonicities and glandular secretions. These latter aspects were particularly emphasized by Kempf,⁹ and more recently, in a way which brings them in line for study after the comparative method, by Storch.¹⁰

The only set of motor adjustments that have been carefully studied for any length of time, more particularly by the comparative method, are those habitual activities which are comprised in language. Comparative philology is approximately a century old.¹¹

While words may be defined as habitual acts which have for their purpose the conveying of an idea to another person, language as the totality of such acts can only be understood as an expression of man as a social animal. While it is true, therefore, that language has its individual aspects, it has what are perhaps more important, its social aspects, and while, as Jenisch says, "in language the whole intellectual and moral essence of a man is to some extent revealed," it is also true that, as Sherer says of the work of the Grimms, that philology in their hands became a pattern for "comparative investigation of the entire life of mankind."

As a Danish philosopher has well said, "in his whole life man achieves nothing so great or so wonderful as what he achieved when he learned to talk." It will be valuable for us, therefore, if we can see whether the language which is learned by the child, passed on to him in large part by the adults, from the two aspects of the child's own contributions and racial traditions which are incorporated in that which is transmitted, conforms to the general formula which I have already laid down. In the first place, the method of classifying objects by children illustrates the crude way in which analogies are used to associate what we conceive to be widely different objects. A little girl divided the animal kingdom into two groups: first, horses, including all four-footed animals, even a tortoise, and second, fishes,

⁹ Kempf, E. J. *Psychopathology*. Mosby, St. Louis.

¹⁰ Storch, A. *The Primitive Archaic Forms of Inner Experiences and Thoughts in Schizophrenia*. Nervous and Mental Disease Monograph Series, No. 36. New York and Washington.

¹¹ The examples from language here cited are, unless otherwise specified, from Jespersen, O.: *Language*, published by Henry Holt & Co., 1924.

including all that moved without the use of feet, for example, birds and flies. This is a perfectly characteristic method of classification whereby a single element that is common is held sufficient to bind together a group of what we would consider exceedingly diverse objects. Another example is that of a boy who, having had a pig drawn for him, the name "pig" was used not only for a pig but for drawing a pig, and for writing in general. Such similarities when spread out in time produce interesting results as they are handed on from generation to generation. Jespersen gives the example of the word *Tripes*. It originally meant three-legged stool, then came to mean the man who sat on a three-legged stool and disputed for his degrees at Cambridge. Then as this Mr. Tripes had to provide comic verses these were known as "Tripes verses" and came to be printed under that name long after Mr. Tripes himself had disappeared. Then, inasmuch as the examination list was printed on the back of these verses, it was called the Tripes list, and Tripes had now come to mean the examination itself.

It is interesting in passing to note that one of the results that is apparently brought about largely by this way of thinking is the confusion of ambivalent opposites.¹² One little girl says, "This is where we sat next time," and similarly the Gothic word which corresponds to "yesterday" means "to-morrow." The distinction in Chinese between such opposite meanings as *acquired* and *give*, *buy* and *sell*, are only made by tone.

The instances are very numerous among the savage races where a concrete expression is used where we would use a more abstract one. This is perhaps the most characteristic difference between child and adult language on the one hand and primitive and civilized language on the other. Typical instances in point occur in various languages of such a character as, for example, the inability to express such abstract ideas as father, mother, head, or eye separately. They can only be expressed in connection with an indication of whose father, mother, head, or eye is being spoken of. The phenomena of concord by which is meant that a secondary word such as an adjective or a verb must agree with the primary word, substantive or subject, to which it belongs, is one of the instances in which this exceeding concreteness of primitive language works itself out into what for us would be extreme confusion. This is illustrated by what we call the

¹² For some further excellent examples of ambivalency in language see Joe Tom Sun: Symbolism in the Sumerian Written Language. The Psychoanalytic Review, July, 1924.

"concord of negatives" in old English whereby there were various forms of negatives which have been preserved in the vulgar speech of modern times in such words as "niver," "nobody," "nothin'," whereas in good English a single negative *no* is sufficient. The abstract idea of negation has replaced the multiplicity of concrete negatives. For instance, in Bantu a sentence which is based upon the word *man* in the singular is a very different looking affair from the same sentence based upon the word *man* in the plural—*men*. In the same way such words as country, nation, girl, are entirely different words in the singular and the plural, whereas for the most part we have developed a simple suffix, *s*, which we add to words to indicate the idea of plurality; similarly for the possessive case and in the matter of gender. Father and mother, man and wife, bull and cow, belong to the more primitive concrete type of differentiation, while more abstract later forms are illustrated by count and countess, he-bear and she-bear. Other examples of irregular and regular forms which have a similar explanation are met with in degrees of comparison, such as good, better, ill, worse, as over against regular forms like happy, happier, big, bigger, while in the matter of verbal flexion such forms as *am*, *is*, *was*, *been*, are again in striking contrast to more modernly developed forms which depend upon adding a mere ending and leaving the body of the word unchanged. Jespersen sums up his law of development in the following definition: "The evolution of language shows a progressive tendency from inseparable, irregular conglomerations to freely and regularly combinable short elements." The examples that have been given all illustrate this change, both in ontogeny and philogeny, and as expressed in this definition the change can be seen to conform to the well-known law of economy.

Some further examples of the vocabulary of primitive people may be illuminating as showing how the more advanced a language is the greater is its power of expressing abstract ideas and, *vice versa*, the more primitive it is the more concrete are its expressions. The Tasmanian Aborigines, for example, had no words for abstract ideas. They possessed a name, for example, for each variety of gum tree and wattle tree, but they had no word for tree; neither had they any expression for such abstract qualities as hard, soft, warm, cold, long, short, round. The Mohicans have words for cutting various objects, but no word that means simply cutting. The Zulus have words for red cow, white cow, etc., but no word for cow. In Central Brazil

the natives have a word for each parrot, but the general idea parrot has no corresponding term. It is the same with the idea *palm*. Many languages have no word for brother, but words for elder brother and younger brother. In Cherokee there is no word for washing, but different words which mean "I wash myself," "I wash my head," "I wash the head of somebody else," "I wash my face," "I wash the face of somebody else," "I wash my hands or feet," "I wash my clothes," "I wash dishes," "I wash a child," "I wash meat." The Melanesians have special words to denote a definite number of certain objects, thus ten cocoanuts, ten canoes, and ten fishes would each be expressed by different words. In other languages the numerals are the same for all classes, but require after them certain class-denoting words varying according to the character of the objects. This is in some respects comparable to the English *head* of cattle, and reminds one of the use in England of stone and ton in accordance with the nature of the thing weighed or measured. This nomenclature is easily seen to be concretistic in origin, such as horse, mare, stallion, foal, colt, instead of he-horse, she-horse, young-horse, etc., and the use of different terms for what is essentially the same idea, as a flock of sheep, a pack of wolves, a herd of cattle, a bevy of larks, a covey of partridges, a shoal of fish.

Feelings, emotions, instincts, were the first things that sought expression, not thoughts and ideas and intellectual formulations. Of all these emotions, it is interesting to note that a philologist of Jespersen's standing thinks the most powerful must have been love. He believes "language was born in the courting days of mankind."

In the development of language, therefore, from concrete to abstract possibilities, and from the long, complicated conglomerations of words which are obliged to bear relations to one another in accordance with the principle of concord, we find language has developed much as writing has. Writing was first primitive picture writing, each sign meaning a whole sentence or more, then idiographic writing of each word by itself, succeeded by syllabic writing, and finally by alphabetic writing. The tendency to analysis is well indicated by this progression, for the further back we go the more it is seen that the sentence is the original indissoluble whole which has not yet been separated even into single words.

The history of thought as exemplified in the ways of thinking of the savage and of the child illustrate these principles.¹⁸ This history

¹⁸ White, Wm. A. An Introduction to the Study of the Mind. Nerv. and Mental Monog. Ser., No. 38.

shows a change from relative simplicity toward an ever increasing complexity and differentiation. The change, as described by Storch,¹⁴ is from *feeling*, *concreteness*, and *perception* in the direction of *reasoning*, *differentiation*, and *abstraction*. I will illustrate.

Our idea of number is extremely abstract, that is, number as such has been separated, abstracted from its relation with any particular object or group of objects, and exists as an abstract conception in itself. With the savage, however, the condition is quite otherwise. The Malay, for example, uses the word *lima*, which once meant hand, to express the number five. Similarly the Sanscrit word *pentscha* means hand. The implication is plain. Man began to count by using his hands and fingers. Then with the Tamanacs of the Orinoco¹⁵ the term for five means the "whole hand"; for six, "one of the other hand"; for ten, "both hands"; for eleven, "one to the foot"; for fifteen, the "whole foot"; for sixteen, "one of the other foot"; and for twenty, "one man." Note how concrete is the way of thinking as expressed in such language. One can almost reproduce the visual image of the actual process of tallying on the fingers and toes from these expressions of the different numerals. The thinking is concrete; it includes the actual situation as perceived in all its details; it is perceptual and undifferentiated. Number as an abstraction has not yet appeared. The exceeding concreteness and perceptual character of this kind of thinking is well illustrated by the fact that for savages three boats of one tribe and two boats of another tribe are five boats only under certain circumstances, as when the two tribes have undertaken an expedition in concert.¹⁶ The number is here seen to be a structural feature of the actual, concrete, perceived situation. Traces of this way of counting are still to be found in our present language. Counting by fives is the savage way. We do not use words to count this way, but we still do count this way nevertheless when we use the Roman numerals. Counting by tens, the decimal system, is our usual way, while counting by twenties is still preserved in such expressions as "four-score" and in the French "*quatre-vingt*."

Just as the savage's thinking in numbers shows the qualities of relative simplicity and lack of differentiation, so does his thinking in other respects. He is quite as vague about his environment, about

¹⁴ Loc. cit.

¹⁵ Tylor. *Anthropology*.

¹⁶ Storch. Loc. cit.

himself, and about the relations of the two.¹⁷ The woods and streams, the air and the heavens are filled with spirits, with characters like his own, and they and his fellows are capable of influencing him in all sorts of magic ways. The arrow that has wounded him is treated and kept cool instead of the wound; his name is a part of himself as much as his hand, and each time it passes his lips he parts with a vital part of himself; he and his tribe are dependent upon the health of the chief, and should his health fail the tribe is in danger; a childless woman puts on the robe of a woman who has borne children and thus acquires her fruitfulness; he does not differentiate past, present, and future; he believes that a sorcerer can produce a given effect by merely thinking it, so that evil may be produced by simply wishing it.¹⁸

Just as the thinking of primitive man is relatively simple and undifferentiated as compared with his adult descendant, so the thinking of the child has the same qualities as compared with the thinking of the adult. Like the savage, the distinction between him and his environment, between the "I" and the "not I," is blurred and indistinct, and he passes through a stage of development which is analogous to the stage of animism of primitive peoples, when, like them, he peoples his surroundings with spirits or demons with natures like his own. The fear of ghosts and the superstitions of children and savages are quite similar and dependent upon the same processes of thought, the same mental mechanisms.

The world of the child, like that of the savage, is exceedingly concrete and perceptual; things are seen and apprehended in the situation in which they happen to be met. For example, a five-year-old girl, in answer to the question, "What is a wagon?" said, "Men get in, one gives the horse a blow with the whip, and then the horse runs."¹⁹ The situation in which the wagon has been perceived constitutes a whole; wagon as a separate object has not been abstracted from the concrete, perceptual experience.

What are the applications of this comparative way of looking at the human organism to the problems of psychopathology? We are coming to an understanding of man in his physical and his personality make-up and in his social relations by a study of and an understanding of his past; by an interpretation of what he is by a knowledge

¹⁷ See IV. Individuality and Introversion.

¹⁸ Lévy-Bruhl. *Primitive Mentality*. Macmillan Company, New York, 1923.

¹⁹ Storch. *Loc. cit.*

of what he *has been*; an explanation of the *present* in terms of the factors that have been found operative in a study of his *past*.

It will be worth while to see how these principles apply to a specific problem of psychopathology. I will choose the problem of dementia precox (schizophrenia) because these ways of thinking have already been applied to this problem and we can note with what results. Then again schizophrenia may properly, I think, be thought of as the major problem of psychiatry to-day, not only because it includes the largest percentage of institutionalized subjects and therefore is major from the economic and social aspects, but because intrinsically it presents specific problems of such a nature that psychiatry might well devote its efforts exclusively to them with a fair prospect that their solution would throw more light upon the whole region of psychopathology than the solution of any other equally distinctive group. Not to go into too much detail, I will mention as some only of the problems of schizophrenia those of heredity, of constitution in its double aspect of organic and personality make-up, the relation of physical and mental, the neural and the extraneural pathology, the environmental factors, the nature and mechanism of regression, the criteria of malignancy and of archaic symbolization, the relation of precipitating factors to constitution, the significance of content, of the process of thinking, and of the conative, motor, or emissive aspects of thought, the problem of the unconscious, and of various mechanisms such as fixation mechanisms, etc., etc.

In the first place, the thinking of the schizophrenic approaches the kind of thinking of savages and children, as already indicated, in that the feeling component is more in evidence than reasoning, concreteness than differentiation, and perception than abstraction. The characteristics of schizophrenic thought processes and their similarities to primitive ways of thinking have attracted the attention of several recent writers. Thus Domarus²⁰ describes certain modes of thought which appear among primitive races and compares them with "normal," or scientific and logical thought processes which have survived as the "fittest," that is, the most useful in dealing with external reality. He recognizes three stages in development: the pre-archaic, the archaic-paralogical, and the paralogical-logical. In the pre-archaic, which may be supposed to have existed in such primitive forms as Pithecanthropus and in schizophrenic stupor, there is a gen-

²⁰ v. Domarus, E. Praelogisches Denken in der Schizophrenie. Zeitschr. für die ges. Neur. u. Psychiat., 87, 1923. (Abstr. Jour. Ment. Sci., April, 1924.)

erally lowered intensity of images, whether sensory or motor, and of affectivity, and a lack of any attempt to establish relationships between these images, and a lack of any real thought process. In the archaic thinking of a pre-logical kind, found among primitive savage races, the vividness of the images is greater than among more highly developed races, and the effect produced in the observer is projected and believed to be an inherent attribute of the object, which thus acquires a "demonic" character. All things which arouse a similar emotion are thought of as being actually the same. In dementia precox there is a similar loss of objectivity; hallucinations and reality are imperfectly distinguished, and every happening has a meaning and effect on the observer; the idea of an action produces the action directly, instead of offering a possibility of action, and this is interpreted as a compulsion from without. Paralogical thinking is a stage beyond this: here identification of objects is based on similarities, differences being neglected. It follows the "law of participation" described by Lévy-Bruhl²¹—all things with the same qualities are the same: "certain Indians run fast," "stags run fast," therefore "some Indians are stags." This form of thought is common in dementia precox.

Storch, in a very interesting paper,²² takes up for consideration the ways in which the schizophrenic reacts to the world of reality and to his inner autistic world or world of phantasy. While for the normal person the chief criterion of the world of real objects is their independence of him, whereas imaginary things depend for their existence on him, the general characteristics of the schizophrenic's experience is that his mental and imaginary experiences have a substantial and concrete nature where the normal person would see only symbols and analogies. His thoughts have magical power and can produce real results; they have for him a substance and he can manipulate them physically. Speech has preserved many expressions which for the normal are symbolical, but for the patient actual; we "look down" on despised people—for the patient the physical act of looking down on someone makes him despicable; we "collect our thoughts"—the patient makes gestures with similar meaning.

With regard to the world of hallucinations he says some patients feel these to be a representation of certain aspects of their own

²¹ See IX. Primitive Mentality.

²² Storch, A. Bewusstseins- und Wirklichkeitsbereiche in der Schizophrenie. *Zeitschr. f. d. ges. Neu. u. Psychiat.*, April, 1923. (Abstr. *Jour. Ment. Sci.*, April, 1924.)

tendencies, distinguished by their vividness and actuality from mere imaginings, existing external to themselves, but differing from other external objects in their special relation to and dependence on the observer's ego—emanations from that ego.

The patient views the world of reality as changed by his delusional ideas as a new mode of existence; it has lost its identity as something separate from him, and is experienced as a sort of concrete interpenetration. We say that someone puts his whole soul into his work—the patient experiences this as a concrete loss of a part of himself; we speak of “drinking in something with our eyes”—for the patient an actual interchange of substance occurs; every activity in relation to something of emotional interest to him is an exchange of forces between the ego and the object. This recalls the emanation idea of primitive peoples—the idea of forces which pass through space from one object to another. In a similar way there is an interweaving of the patient's personality with that of the persons about him; the feeling of “being one with somebody” which we mean symbolically is felt as actuality by the patient; this same sense of union is felt with the universe, and is not unlike the experiences of mystics; he becomes God by this same process of interpenetration.

While his peculiar experiences have a concrete actuality for the patient, yet they are different from his experiences of the world of reality. The appearances of this autistic world are as vivid and real as external objects but their reality is different in that it depends on the observer. Attempts may be made to fit this world into external reality, such as ascribing sensations or pictures to some apparatus; or the patient may ascribe the appearances to some special gift of spiritual vision.

There are two types of the interpenetration of the self and the world; in the one the whole world may seem to be absorbed into the self, in the other the self is absorbed into the world. For the patient of the former types all objects are merely qualities of himself made concrete, emanations from himself. This view is based on the nature of his immediate knowledge and is akin to the mental processes of the savages. It corresponds to the “idealistic philosophy” which regards the phenomena of the world without material existence but merely as projections of the perceiving self. For the patient of the latter type the sense of being an individual is lost, the self is felt as a dependent part of the surroundings, which can penetrate into his being. He feels his thoughts are taken from him and he is thus

deprived of portions of himself; he refuses to speak, since speech is a "giving away of himself" in the most literal sense, and he withdraws from all conflict with the external world to protect himself from the sense of loss which is accompanied by tension and emotional discomfort. Impulsive actions may be a reaction to such tension. He feels safe only in the most complete severance from the world, in the extinction of all relationships with it.

Wildermuth has studied the similarities between the real and phantasy worlds of schizophrenics and the real and phantasy worlds of children.²³ Meyer-Gross had already called attention to the similarity in the behavior of the schizophrenic to that of the child at play—a behavior in which the child lives in a world of its own, but is capable at any moment of exchanging it for reality; he keeps them apart, however, and regards as a spoil-sport anyone who tries to mix them.

The similarity is even more far-reaching than this author has shown. The difference between the child and the patient is mainly that the former can always return to reality, and that after puberty he ceases to be capable of living in the autistic world with the former completeness. As the child grows older he comes to require more and more reality to make his game of pretense satisfactory.

Not only does the schizophrenic's conduct strike the observer as resembling play, but he himself feels it subjectively to have a similar quality. He says people are making a game of him; it seems as if he were taking part in some play that is going on, or he plays a part without completely believing himself to be the imagined person he represents; or the hallucinations give him the impression that some sort of moving picture or theater is going on.

Many other childish manifestations resemble those of schizophrenics: children's jokes, tricks, and plays on words have a similar autistic character, with no apparent meaning in relation to actualities, and this changes at puberty.²⁴ Children, like the patients, love to make up a sort of neoplastic language of their own, having meanings known only to themselves or their immediate circle. Perseveration

²³ Wildermuth, H. Schizophrene Zeichen beim gesunden kind. *Zeitschr. f. d. ges. Neu. u. Psychiat.*, September, 1923. (*Abstr. Jour. Ment. Sci.*, April, 1924.) In referring to this paper of Wildermuth and the two preceding papers of Storch and Domarus, I have made free to use, in considerable part, the actual language of the abstractor (M. R. Barkas) as it appeared in the *Journal of Mental Science* and I beg to here acknowledge my indebtedness.

²⁴ See Jelliffe, *The Signs of Predementia Praecox*, *Am. Jl. Med. Sc.*, 1907, for similar conception.

and stereotypy in speech and action are often seen in children. Their musical performances show the same mechanical rendering, and the same preference for simple melodies and rhythms as are found in schizophrenics. The child lives far more in his unconscious or sub-conscious self than does the adult, and has only partially discovered himself as a personality—has not become a problem to himself. This may be due to incomplete development; the author considers the part played by defect of the ductless glands, and the concept of the imperfectly developed organism which fails when it has to face the tasks of adult life, and thus make it possible for mental traumata to determine the onset of the symptoms.

I have undertaken to define psychiatry, perhaps in somewhat loosely descriptive terms that are sufficient to indicate its general scope, its relation to the several sciences on which it is dependent, and to the healing art of which it is a part. I have indicated that the progress of science in general is from a descriptive stage to a stage of interpretation, and that sooner or later interpretation must come to a utilization of the historical and the comparative methods of study. I have shown this progress in the development of our knowledge of the sciences in related fields to psychiatry and in those upon which psychiatry particularly depends, particularly our knowledge of the mind, and I have utilized the evidences derivable from language largely for purposes of illustration. Finally, I have discussed a specific problem of psychiatry, namely, schizophrenia, and shown how the comparative method may be used in the interpretation of the symptoms at the psychological (symbolic) level. I have stopped the process of interpretation at this point, having indicated the fields to which interpretation would have to be applied if an interpretation of the whole problem of schizophrenia were attempted. Naturally a paper of this sort is no place for such an attempt. That would require a large volume. Here only small samplings can be dealt with.

No one would undertake to minimize the value to medicine of the germ theory of disease, but its influence undoubtedly extended to psychiatry, where it was peculiarly inapplicable, for the theory supposes the causes of disease to reside in the present and to invade the organism from without, both unfortunate concepts with which to approach such a problem, for example, as schizophrenia. In psychiatry questions of infection and of the present moment are both relatively unimportant. Here one must needs consider the organism as a whole in all that that expression means, not only in its present

construction but what that structure means as the organized precipitate of hundreds of thousands, nay, millions of years of experience, integrated in large part by the nervous system, which is the master organizer, and coördinator of experience both phyletic and individual, the great integrator of the organism. Individual reactions which seem to have an adequate explanation in individual experience must of necessity therefore have archaic components, for to each reaction the individual brings his entire self, which includes his entire past. What appears to be the simple act of walking, when analyzed will not only be found to be made up of most intricate neuromuscular adjustments, but can be seen, in the rhythmic swing of arms in relation to the advancing feet, to contain the remnants of quadrupedal progression. I have given a similar illustration in the way in which counting by fives has been preserved in our present methods of notation.

If, to use an analogy, the mind is but one aspect of the organism, as the facet of a crystal is but one aspect of the crystal, then, just as the size and form of that facet will depend upon all the rest of the crystal, so the mind must depend upon all the rest of the organism. The old-time problem (I prefer to call it a pseudo-problem) of the relation of mind and body is thrown into high relief but in a radically different way, not as to unrelated components of the organism, but to revert to the analogy of the crystal, as to aspects of the organism as a whole. It is possible, with this new way of looking at things, not only to solve old problems (mind and body) but to see new facts. For example, we understand why deficient organic structure and defective mind go together, and we can further understand how a compensatory psychosis may go along with a compensatory somatosis; why, for example, paranoiacs (compensatory psychosis) do not have tuberculosis but do have cardiac hypertrophy and vascular rupture (compensatory somatosis).

When psychiatry departed from the field of the immediate experiences of the patient it was on its way to the comparative method. The adoption of the comparative method, for which I am here only endeavoring to secure conscious recognition, was the opening of the way to an understanding of the human being which seems to me to be easily the most important accomplishment which science can have to its credit.

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III

THE HUMAN ORGANISM AS AN ENERGY SYSTEM *

In undertaking to discuss the subject of the human organism as an energy system in the few minutes that are allowed me two thoughts are in my mind. The first is one with which you are quite familiar. This refers to the extent to which specialization has taken place in medicine in recent years. Medical specialties, as you know, have increased with great rapidity, and as you must know and feel also these specialties tend to be practiced by men who have largely either lost their interest in or severed their connection from general medicine to a considerable degree. It has happened, therefore, that these specialties have proceeded along lines of development more or less independent of the parent stem. To put it in the terms which seem to me significant in connection with what I am about to say, the progress of medicine has largely been along analytic rather than synthetic lines.

The second thought I have in mind, and which largely grows out of the first, is that we have not to-day any adequate theory of disease as such. The analytic way of thinking about illness does not lend itself to a comprehensive formulation of the nature of disease. Occupied as medicine is with the innumerable details of a large number of specialties, it has lost sight, I fear, of the general principles that permeate them all, and it is only by a broad survey of the entire situation in accordance with what I would call methods that are synthetic rather than analytic that these general principles will become visible.

My communication has to do with certain of these general principles. That it is speculative largely I do not deny, nor do I attempt to excuse. In the great borderland of science where the known fades indistinguishably into the unknown, speculation of necessity must take the place of rigid formulation based upon actually known facts. But speculation is the only tool that we have at hand with which to penetrate this vague region that leads into the unknown, to find the

* Read at the annual meeting of the American Congress on Internal Medicine, Washington, D. C., March 9-14, 1925. *Annals of Clinical Medicine*, October, 1925.

facts that are hidden there and which must then be subjected to the acid tests of science, and so I make no apology for such speculations as I may indulge in.

It is no less difficult to think of the body as developing from a unicellular organism, as each one does, than it is to think of the mind as having similarly simple beginnings. What we know as mind in all its present infinite complexity is the culmination of a type of response of the living organism that is historically as old as the bodily types of response with which we are more familiar. Mind is really but one way in which the organism responds to life situations of which the physiological and the metabolic or chemical are but other aspects. The psychiatrist therefore must stand for the proposition that mental reactions, as we know them, have a historical development as old as are the bodily reactions and like them can only be adequately understood in the light of that historical background. From this point of view it would be as illogical to assume that we knew all about mental reactions from their surface indications as that we could learn anatomy by a survey of the surface of the body, or that we could interpret their meaning in the one case any more than in the other without taking into consideration the historical background, the record of their development in time.

What is the nature of mind, of mental reactions as we understand them? Their nature can be simply expressed by saying that they are total reactions, that is, reactions of the organism as a whole. Whenever we speak of reactions of a particular organ or part of the organism we are in the realm of physiology but whenever we ask, What is the man doing? we must of necessity formulate the answer in psychological terms and, too, and this is of the utmost importance, we imply that the interpretation of what he is doing can only be understood when the whole historical, that is, temporal background, both personal and racial (phyletic), is given adequate consideration quite as is the case in attempting to understand bodily structure and function. In other words, the biological viewpoint must include as well the total or psychological types of reaction as the partial or physiological. To use a very imperfect analogy: Just as we can look at and examine any one of the numerous facets of a crystal so we can look at and examine any one of the various aspects of the living organism—the structural, the physiological, the metabolic—but just as we will have no understanding of the crystal as a whole unless we examine all of the facets and their relations to each other and to the

whole, so we will have no understanding of the organism as a whole unless we examine all of its aspects and their relations to each other and to the whole. The key note to an understanding of mind is integration. Mental reactions represent the reactions of the total integrated organism in which each part receives its final explanation only in terms of its relations to the whole.

From this point of view, therefore, any circumstance or condition of the organism may be viewed from the psychological as well as the somatic angle; and the organism as a whole, in reference to any such circumstances or conditions, may present as well a psychological as a somatic aspect. And, too, inasmuch as each part of the organism, each organ, goes into and helps form the organism as a whole, is one of the parts the integration of which forms the whole, each part, each organ, must contribute something to the final pattern of the whole, must, in other words, in some way be represented in the psyche, must subtend a certain psychological component. For every disease, therefore, or for that matter for every state of the organism, there must be as well a psychic as a somatic component, which means, among other things, that when looked at from the point of view of its parts it presents psychic factors.

A generation ago, only, pathology was a study of the dead body, its concepts were formulated in the "dead house" and at the autopsy, it was structural only. Then slowly there crept into these static concepts the idea of function and now pathology has cut loose pretty successfully from its exclusively structural moorings and realizes the importance of function. Now the next step will be to see the organs, not separately, as they are successively removed from the body at autopsy and carefully weighed, measured, and otherwise examined, nor even to understand them physiologically as the pathologist refers to the digest accompanying the case and to the results of the several functional tests conducted during life, but as they exist, not in themselves alone, but as integrated portions of the organism as a whole. I would introduce the psychic factor into the study of disease, make pathology three dimensional, and extend our concept beyond the confines of the individual to include all life, and further, like the exponents of relativity, I would include time as a fourth coördinate.

This introduction of what I have called the *time coördinate* into the field of medicine in general and of psychiatry in particular is illustrated in the known vulnerability of inferior organs, that is, of organs defective in development or relatively infantile in anatomic

make-up as compared with the more usual, so-called normal, or adult type of organ, and the relative malignancy of tumors of embryonal tissue characteristics. It would seem here that the organs or tissues in question have failed by not having come up to a standard that implies that they have acquired the maximum results of past experience as laid down in structure. An inquiry into the bearing of the time factor as thus displayed in structure and function relates these organs and their functions to more primitive types in the biological scale or evolutionary phylum and is at the basis of the historical method and, too, of the comparative method of scientific inquiry.

If we will consider the individual in this way, as possessed of psychic patterns of reaction that contain the precipitate of millions of years of experience as the body contains that experience laid down in structure, we will get a new and very stimulating and illuminating slant upon many problems that now are quite obscure.

Where will this way of thinking lead us? and to what purpose? Let us follow it sufficiently to see!

In the first place it is evident that the concept organism-as-a-whole cannot refer solely to the body but must include the mind. Mind and body are not separate and distinct but only different aspects of the organism; nor are they related to a third reality like a man and his shadow; nor yet are they related by a constant process of give and take like the city and the river. The age-long distinction of mind and body has been built up largely as the result of metaphysical speculation until finally a pseudo-problem has been created which is difficult to deal with. My suggestion is that the most practical way to deal with this situation is to regard them as two aspects of the organism, like two faces of a crystal may be considered separately or as related to the entire structure.

The meaning that immediately emerges from looking at mind and body as but two aspects of the organism is that *for every situation there is as well a psychic as a somatic aspect*, or, as there is no controversy about the latter, that every situation, for our purpose, *every disease, has a psychic component*, and further that this component has a history as long and as important for its understanding as has the somatic component. It is only since the advent of the theory of evolution that the importance of the past for the understanding of the present has been appreciated. Heretofore, however, the importance of the past has only received a partial acknowledgment by somatic pathology. We are now beginning to learn that it has an equal impor-

tance for psychopathology.¹ This concept in its length, breadth and thickness, that is, in all that it implies, is really revolutionary and to my mind may easily be the most important thing to happen to medicine in many a day. It means no less than that for an adequate understanding of any present situation the entire past, which necessarily includes the past of the psyche, must be understood. The present does not stand alone, it emerges from the past.

It would hardly seem necessary to proceed further along these lines to appreciate that I am aiming at a conception of the organism that regards it fundamentally as a going concern, not as an organic formulation that has come to rest, and further that I think of energy, not as of two kinds, bodily and psychic, but as of one kind. Body is one aspect of energy, it is what I have called energy laid down in structure or *structuralized function*. Mind is another aspect of energy. Here the process of thinking is function, and the content of thought is structure. What we are really dealing with, therefore, is the *distribution of energy* as psychic or somatic and *its differentiation* in these two spheres of activity. By differentiation here is meant its investiture of the several psychic and somatic structures.² *The final pattern of the psyche, then, at whatever level we cross-sect it is backgrounded by a specific pattern of somatic structure and energetic investiture.*

The whole problem of chronic disease, it would seem, might be illuminated from this standpoint. Here we may easily be dealing with mechanisms that put too much load upon certain organs. A shifting of the objectives of the individual in time might redistribute the load so that it would be much more comfortably borne, or actually diminish it materially. Take, for example, the problem of cancer, which for so long has resisted solution. Malignant neoplasms can be thought of as examples of groups of cells which either have accumulated sufficient energy to start an independent organization of their own or have escaped the dominance of the parent organism because

¹ See II. The Comparative Method in Psychiatry (Psychopathology).

² I speak of psychic structures and organs just as I speak of somatic structures and organs. This use I believe fully warranted by modern theories of energy and of the structure of matter. I think, too, that to think of an idea or a feeling as an organ as only vaguely perhaps analogous to a muscle or a ganglion in having a function to perform, in being constructed, so to speak, for the special purpose of doing a particular thing, to think of the unconscious as a vast and complex organ of the mind, like the cerebrum perhaps, helps one to think of the organism as a whole and of the play of energy throughout its many structural parts.

of its failing strength—senility or presenility.³ Many illuminating analogies might be drawn along these lines, as for example, the analogy to anarchy in the social sphere, and the embryonal character of the malignant cells as comparable to the similar embryonal character of anarchistic groups resulting as they do from a breaking down (dedifferentiation) of the social structure. It is easy to be seen that the entire symptomatology of cancer does not refer to the tumor mass only but, as in the corresponding case of anarchy, resides also in the higher centers—evidences of loss of control, loss of dominance.

Let me use this type of illustration a little further to give an indication of how the consideration of the organism as an energy system may be illuminating. As you know, malignancy is by no means necessarily a sign of senility. Anarchistic cell growths may arise during the period of youth and this is due, in accordance with the principles I have just suggested, not to failure of dominance but to an accession of energy by the group concerned, which is ordinarily expressed by saying that continuous irritation may be at the basis of a malignant neoplasm. In other words, energy has been added at the point of irritation until its sum total is sufficient to enable the cells at that point to overcome the dominance of the parent organism, and the natural tendency of the cells toward unrestrained growth and multiplication is realized.

Let us follow this suggestion a little way and see where it leads.

The first type of case I have in mind is represented by a case reported by Maeder.⁴ A young woman has a very ardent love affair, which, however, comes to naught. The engagement is broken off. Her heart is broken, she becomes depressed, loses her appetite, ceases her social activities, gives up her interests, becomes more and more self-centered, loses flesh, has insomnia, and develops pulmonary tuberculosis. Treatment addressed to the psychological situation, which restores her hope and brings back her interests, results in cure not only of the mental depression but of the tuberculosis. How are we to evaluate such a situation? My way of thinking of it, which seems to me decidedly helpful, is from the point of view of the organism as an energy system. This woman as an energy system has been in the habit of finding a very definite outlet for her energy in a given direction and an outlet which was adequate, not only sufficient in size

³ See Child, C. M.: *Physiological Foundations of Behavior*. New York, 1924. Henry Holt & Co.

⁴ Maeder, A.: *Psychopathologie und allgemeine Pathologie*. Zeitschr. f. d. g. Neur. und Psychiat., April, 1923, ably abstracted by M. R. Barkas in the Jour. of Ment. Sc., July, 1924.

so that the energy could get out in sufficient quantity but also it led in the right direction because it was socially acceptable and acceptable to her own ego ideals. Now this outlet is cut off and the question is, What becomes of the energy? Obviously from the symptomatology the energy has ceased to flow in outside interests. The energy has apparently become occupied with matters that are closer than the outside world of reality, and as a psychiatrist I would have no hesitation in saying that if we knew the details of this individual's psychology we would learn that the energy was largely occupied in a very rich phantasy life. But another thing has happened which has not quite as obviously psychological implications. Especial stress has fallen on the respiratory system with the consequent development of pulmonary tuberculosis. Why the respiratory system should be especially stressed in such a situation is not clear. One might speculate at considerable length. The main point, however, is that a certain organ or system of organs appears to be particularly stressed under certain circumstances and to break down as the result of such stresses, the stress having originated in deflecting energy from the direction in which it was flowing into satisfying interests back into the machinery. It is as if an automobile which had been running satisfactorily along the highway at sixty miles an hour were held fast by some obstacle so that it could not move forward at all but the engine was kept at the same speed. Under these circumstances I am quite sure that the machine would very soon develop difficulties, very much sooner in fact than if it had remained running on the highway. The energy, which under normal running conditions would be dissipated, drained off in all sorts of directions by radiation and otherwise, is now confined to the machine and will develop stresses, such as overheating for example, which would not be developed under normal running conditions. I think the suggestions I make in this case make it possible to think about this particular patient and her pulmonary tuberculosis in a way which hitches up the whole symptomatology, mental and physical, into a coherent, understandable whole, and shows very well the part the psychological component plays and equally well indicates that in this case pulmonary tuberculosis was by no means wholly a problem of infection.

I might cite another example illustrative in the same way of throwing too much stress upon some certain systems of organs or, as I have expressed it, of investing them with more energy than they are capable of handling. It is quite in accordance with orthodox conceptions that the business man who has led an active career until

he has passed his sixth decade and who then retires not infrequently dies rather promptly. It seems to me that the energy concept lends itself to an interpretation of this result. As in the case of the tuberculous girl just cited, the avenues of outflow of his energy have been cut off, and the machine instead of running smoothly along the highway as has been its wont has stopped but the engine continues nevertheless to run at high speed. This means that the energy that otherwise was drafted off into all sorts of channels of expression is now as it were turned back upon the machine itself. When we remember that this machine is sixty-odd years old, that it is already in the pre-senile or arteriosclerotic stage of decrepitude, we can understand why its various parts, the several organs of the body, are incapable of withstanding this added load of energy and why the individual plays out earlier than he would if he had kept at his accustomed tasks.

This leads me to another principle which seems to me to be very significant for general medicine. Every organism follows a fairly well defined path of growth and development but we know that this path is not quite the same in every individual. If we were capable of plotting the assets and liabilities of each one in terms of energy distribution we would realize what we have come to a beginning understanding of in our psychiatry, that the energy at certain points in the history of the development of the individual is blocked and at these points development ceases. In other words in any given individual at any given time the various organs of the body and of the mind, for I think of ideas and emotions and tendencies as organs quite as I do of the physiological organs, are in various stages of development, some well advanced, some advanced further than the age of the organism would indicate as usual, and some definitely retarded. In other words, the organism as a whole will present various regions that are normal, that is, usual so far as their degree of development is concerned, and certain other regions that are unusual, either having a development in excess of that which one ordinarily finds or a development which is less than that which one ordinarily finds. These points of lesser development or of retardation represent liabilities in the pattern of the organism, but they are not static liabilities. They nucleate forces which are endeavoring to find adequate expression and when for any reason the individual becomes sick and as a result of his illness the control which is exercised by the higher centers, that is the better developed aspects of his personality, lose their hold upon these retarded components, then these retarded components become activated, and inasmuch as their activity takes place at a considerably

lower level than that at which the activity of the individual as a whole has been accustomed to function, they make for an aggravation of the symptoms of illness. In other words, disease tends to mobilize all these primitive and negating trends which have not found a proper place in the development of the character,⁵ and thus are organized a group of factors which ally themselves with the disease. You are very well familiar with this picture in some of its cruder outlines. The patient who has had in the back of his head for years for some reason or other a definite fear of death but who has been able because of a relatively successful career to keep it in the back of his head, is seized with a serious physical illness. As a result of this illness his fear of death is mobilized and becomes a distinct ally of the disease, and under these circumstances you know how much more serious the prognosis becomes.⁶

I could give many other examples, from other forms of disease, of the general principle illustrated by the above cases, which is this: *that any new problem of adjustment requires a redistribution of energy and when energy is redistributed in the body the stresses fall in different places, and that organic disease may be related to this redistribution of stress.* From this point of view our original question, What is the man doing? develops much greater significance. We have answered this question in psychological terms. If we could

⁵ See Maeder, *loc. cit.*

⁶ Apropos of this fear of death, I have had certain experiences that lead me to believe that the fear is not far from consciousness in certain types of illness which affect the gastro-intestinal tract, under these circumstances the fear of somatic death, whereas in certain types of illness affecting the cardio-vascular system the fear of death is not in consciousness at all or to any extent but the drive of the individual is directed towards clinching as it were his immortality: he is productive and creative. This distinction can be understood on the basis of the fact that the gastro-intestinal tract has as its fundamental function the preservation of the individual as a somatic unity, whereas the cardio-vascular system is highly responsive to all those emotions that may be classed as belonging to the effort syndrome. If this broad distinction is true the respiratory system ought to fall midway between these two extremes because it is both nutritional in function (oxygen intake) and highly responsive to the emotions. This way of looking at the functions of the several organ systems as backgrounding certain types of instinctive tendencies is at least very suggestive. The endocrine glands from this point of view would belong with the gastro-intestinal system because of their phylogenetic origins in connection therewith, and the general scheme is interestingly in accord with the well established tradition that people who have disease below the diaphragm are depressed while those who have disease above the diaphragm are euphoric. Such a broad conclusion, however, is undoubtedly modified by individual circumstances. For instance, an individual who is depending upon his gastro-intestinal functions for his creative life, such as a chef, a caterer or a wine taster, might find both his somatic integrity and his wish for immortality seriously involved in anything that reduced the efficiency of this system.

answer it in terms of distribution of energy, or, in other words, in terms of the stress placed upon the various organs, we would have an energy pattern of the individual which would indicate the points at which he was being overstressed and at which, therefore, he might break.

It is altogether too much to expect that we can answer this question in these terms at the present time, but the only aspect of the individual that we can interrogate is the psychological and that is why in a discussion of the psychological components of disease this question of organic stress must be considered.

IV

INDIVIDUALITY AND INTROVERSION *

Whenever a new method is introduced into science one of the inevitable results is a bringing out of all the old material and submitting it to reëxamination by the new procedures, a recasting of the old formulas in the new molds, in short, an examination of all of the positions hitherto attained and their revaluation on the basis of the newer concepts. Many of the concepts which had always been taken for granted and used uncritically in the process of reasoning must now be submitted to critical scrutiny to see just where they stand in relation to the new order of things and whether their previous use has been altogether warranted.

Such a concept is that of "individual" as it has been used in the domain of psychopathology. What constitutes an "individual" and what defines and limits the "individual" has never been formulated because it was so obvious that the questions never were asked, and so the concept "individual" has gone the broad and easy way toward static concreteness and must needs be rescued, shaken up, rejuvenated, born again in a more plastic state so that it can be moulded and made to fit, in a useful way, into the new structure that is being raised.

The necessity for this has arisen as a result of the introduction of the genetic concept into practical psychopathology. This genetic concept, while it has been recognized for a long time by psychologists as well as by biologists in general, has only lately come to have an actual place in the workaday world of the practicing psychiatrist and so has only recently been in a position to necessitate a revaluation of the concepts used by the psychiatrist. Pathological mental symptoms can not seek their explanation in the history of the development of the mind unless the concept "individual" is given a much different and much broader meaning than that implied in the life history of a single person that begins at birth and ends at death."

My thesis is that *the usual distinction between individual and*

* Presidential address, annual meeting of the American Psychoanalytic Association, Washington, D. C., May 10, 1916. The Psychoanalytic Review, Vol. IV, No. 1, January, 1916.

environment is largely artificial, that the concept "individual" as implying this distinction has had a distinct history, an evolution, and that the distinction which does arise in this way is broken down by introversion as is particularly well shown in the introversion type of psychoses, dementia precoc.

The history of the development of the feeling of self, the slow differentiation of the "I" from the "not I" has been written by the psychologists of the child. Many examples could be taken from the literature to show that the child for a long time has no clear idea of the distinction between "self" and "not self," that in fact this distinction has to be learned de novo by innumerable experiments, many of them painful, for at first there is absolutely no such distinction in the child's mind.

Preyer's¹ boy as late as nineteen months of age when told to "Give the shoe," picked it from the floor and handed it to him, but then when told to "Give the foot" tried to pick that up with both hands and hand it to him in the same way that he had the shoe. Thus he failed at this late date to appreciate what belonged to him and what did not. He attempted to hand his foot to his father as he had his shoe; he treated it in the same way as if it were not a part of himself.

Professor Hall² mentions a baby as staring steadily at its hand and then trying to grasp the hand looked at with the same hand. Miss Shinn's³ niece "tried to flourish her arm and go on sucking her thumb at the same time, and could not imagine what had suddenly snatched the cherished thumb away."

The distinction between "self" and "not self" has to be slowly and painstakingly worked out as the result of innumerable experiences. Quite characteristically the creeping infant carries everything it grasps to its mouth irrespective of what the grasped object may be. The mouth is a primitive organ of touch of great value. Now the type of experience the baby gets from putting, say a rubber ball, in its mouth is very different from the type of experience which results when it sticks its foot in its mouth. The rubber ball and the foot lie on the floor in front of it. If it grasps the rubber ball and carries it to its mouth the result is a series of touch sensations in the

¹ W. Preyer: *The Mind of the Child*. Chap. XIX, *The Development of the Feeling of Self, the "I" Feeling*. New York, D. Appleton & Co., 1898.

² G. Stanley Hall: *Some Aspects of the Early Sense of Self*. *Am. Jour. Psych.*, Vol. IX, No. 3.

³ Milicent Washburn Shinn: *The Biography of a Baby*. Boston and New York, Houghton Mifflin Co., 1900.

mouth, but if it is the foot that is grasped and carried to the mouth, while there is also a series of touch sensations in the mouth, there is an added series of touch sensations in the foot. It is by such experiments which focus two or more sensory qualities in one experience that the distinction between self and environment is gradually built up, that the concept of self is slowly integrated. In the above cited experience two qualities of touch sensations are integrated, in the same way the sight of the moving hand is integrated with the joint and muscle sensations which bring about the motion, the sensation of touch with the motor sensations which have moved the hand to the touched object, the sensations of sound and of sight, touch and taste, motor sensations, and so on indefinitely through an increasingly complex series of integrations the ego concept is laboriously constructed: an increasingly complex series of conditioned reflexes in the sense of Pawlow.

The distinctly animistic characteristics of the child world are well known and can be seen every day in the activities of children at play. Burnam⁴ has especially called attention to the child's creation of imaginary personages with whom he holds conversations and how too even inanimate objects take on living characteristics. He cites examples: the tracks of dirty feet on the floor are flowers, the creaking chair is talking, the shoemaker's nails are children he is driving to school, examples that, as we shall see, have their deadly parallel in the psychoses.

Despite the great number and varied character of the experiences that make for the construction of the ego concept there always remain serious gaps, defects in the structure. There are certain portions of our bodies that are never adequately included in our conscious concept of self, such portions, for example, as the back of the head, and the region between the shoulder blades. Other portions fail to get into the scheme less obviously.

We are familiar with the small boy who carefully polishes the front part of his shoes and leaves the heels untouched and who likewise absolutely neglects the back of his head when brushing his hair. One should read Miss Shinn's description of her niece, who, in bending over backwards, accidentally hit the back of her head on the floor and by so doing really discovered, for the first time, the back of her head. I think, too, our personal experiences with hysterics will show that those hysterical conversions which lie closest to conscious aware-

⁴ Cited by Havelock Ellis: *The Task of Social Hygiene*. Houghton, Mifflin & Co., Boston and New York, 1915.

ness affect preferably those portions of the body that have been pretty thoroughly integrated in the concept of self. The glove and stocking anesthesia, for example, the various paralyses, etc., are all of regions of the body that are well known, which amounts to saying are easily visible and so more readily brought under psychological control. The paralyses and anesthetics of hysteria are not confined to anatomical areas of nerve distribution, as is well known, but affect a certain portion of the body as it is pictured in the mind of the patient.

These mental schemata, as they are called by Head and Holmes,⁵ are the mental representations of our body to ourselves and the vividness of the several parts may be taken as an indication of their degree of integration in the conscious concept of self. The hands and feet are clearly represented, though perhaps the sole of the foot not very clearly, the arms and legs are both clearly thought of though by preference the front aspects particularly of the upper arm and thigh, the dorsal aspects of which are difficult to see. The arm, for example, is thought of, visualized, as stopping at the shoulder where hysterical palsies also stop, although this point does not correspond to any anatomical limitation of nerve or even muscle supply. The front of the torso is thought of almost exclusively, while the head, although very definitely integrated, tends to be largely represented by the face as it would appear in a mirror. These differences in degree of integration probably act as determiners in various symbolic displacements. "Get thee behind me, Satan," is probably partly determined by the desire to get the evil idea out of mind, that is, in a position where it cannot be seen, in relation to a poorly integrated part of the body and so try and bring about its disappearance—nonexistence. Evil is thought of, therefore, as coming from behind, approaching from the rear, unseen, unheard, stealthily and by subterfuge. Here we see an effort at evasion of biologically distinctive and socially tabooed fixations and the antipathic reaction against them, viz., homosexuality and anal eroticism. So a patient develops his psychosis as a result of being set upon from behind by a gang of men on horseback who attacked him and left him unconscious. Per contra, in those states in which the body is felt to swell up and become greatly enlarged the head often partakes of this feeling most acutely, while in the familiar *verlegung nach oben* the highly integrated state of the head is, perhaps, one reason

⁵ Henry Head and Gordon Holmes: *Sensory Disturbances from Cerebral Lesions*. Brain, 1911, Vol. XXXIV, p. 102.

why the transposition proceeds to it rather than stopping at some less well integrated intermediary point. The familiar feeling of losing the mind may be similarly, in part, determined.

Just a few words regarding certain other, less important, aspects of the problem. Who shall say just at what point the food that is taken into the gastrointestinal tract, and the interior of the gastrointestinal tube is not within, but strictly speaking without, the body; who shall say at just what point this food loses its quality as environment and becomes a part of the individual? Similarly with the interplay of gases in the pulmonary vesicles. While at the surface of the body, temperature, hydrostatic, and electrical conditions prevail which gradually merge into the encompassing environment, and constitute a borderland territory. Sharp lines of demarcation there are none.

The interplay of forces between the individual and the environment is, of course, constant and never ending. The effect of foods, drugs, heat and cold, sunlight, sounds upon the individual; and to reverse the direction the effect of the mechanic upon the particular bit of material he is at work upon are examples, while at the social level the influence of a person upon those about him, and still more remotely of a public speaker or writer radiates in ever wider circles and often outlasts the span of man's bodily life, while the germ plasm hands down actual material particles to succeeding generations to stop—who shall say where?

The indeterminateness of the relation, individual-environment, is testified to by common customs, ways of feeling, and expressions. A gift from a friend long since dead is cherished because it is felt somehow to contain or to have been a part of the dead person in life, while we go away from a strange city carrying with us an impression of it upon our memory.

We may find among primitive peoples similar types of confusion between the "self" and the "not-self" as we found in the infant. In Melanesia⁶ if a man wounds his enemy with an arrow he and his friends will chew irritating leaves and drink hot juices, and they will keep the bow that shot the arrow near the fire, and if they have been able to get hold of the arrow itself they will put it in the fire. These practices will surely cause the wound to become inflamed and the enemy to die by the principles of contagious magic. Similarly

⁶ J. G. Frazer: *The Golden Bough, A Study in Magic and Religion*, Pt. I, *The Magic Art and the Evolution of Kings*, Vol. I, Chap. III, *Sympathetic Magic*.

if his friends recover the arrow they will keep it wrapped in moist, cool leaves and so cause the inflammation to leave the wound.

Among the Betsileo of Madagascar⁷ the nobles of the tribe are attended by men called ramanga whose functions are to eat all the nail-parings and lick up all the spilt blood of their noble masters so that sorcerers may not get possession of them and so, on the principle of contagious magic, work harm to them. Among the tribes of Moab⁸ a childless woman will borrow the robe of a woman who has borne many children that she may acquire the fruitfulness of its owner. The primitive man also regards his name as a part of himself which he protects with elaborate care from becoming known to his enemies.⁹ Cursing an enemy by name becomes, therefore, a potent means of injury, while to mention one's own name freely is a dangerous practice, for each time one's own name passes the lips the owner parts with a vital bit of himself.

Primitive man may be thus said to be relatively undifferentiated, in his way of thinking, from his environment. His personality is diffuse, spread out all over the world of things, has not yet been integrated and at all clearly defined. One of the very best illustrations¹⁰ of the intimate association and the lack of differentiation between man at primitive cultural levels and the forces of nature is seen in the way in which they treat their divine kings. The ruler of the tribe, a godman, is at the very center of the forces of the universe and anything that he does may influence the world for good or for bad, as the case may be. He is therefore hedged in by an enormously complex system of taboos which control his every act. Now it is obvious if he is in such close association with nature, and that the whole welfare of the tribe depends in this intimate way upon him, that he must not be permitted to get sick or grow old and feeble, for if he gets sick or grows old and feeble then the forces of nature will fail, the tribe will be in danger of epidemics, droughts, poor crops, and the like, and so to prevent such dire catastrophe the divine king is killed in the prime of life and in the fullness of his health that his spirit may be passed on unimpaired in strength to his successor.

Examples might be indefinitely multiplied. Enough have been

⁷ Frazer: *The Golden Bough*, Pt. II, *Taboo and the Perils of the Soul*, Chap. V, *Tabooed Things*.

⁸ Frazer: *The Magic Art*, Vol. I, Chap. III.

⁹ Frazer: *Taboo*, Chap. VI, *Tabooed Words*.

¹⁰ Frazer: *The Golden Bough*, Pt. III, *The Dying God*, Chap. II, *The Killing of the Divine King*.

given to illustrate the first part of my thesis that *the usual distinction between individual and environment is largely artificial and that the concept "individual" as implying this distinction has had a distinct history, an evolution.*

Now the point I want to make is that we see a return to these more primitive methods of reaction in the psychoses, not that we find exactly the same ideas, but that we find the same mechanisms, the same types of reaction, the same ways of relating one's self to the world that we find among primitive men. The few examples that I have given of the psychology of primitive man shows that he feels himself constantly under the influence of his surroundings. No symptom is more common in the precox patient than the symptom of being influenced by the forces in his environment. The environment from being something upon which we expend our energies, something which is outside of ourselves, something which we have to deal with and often to mold and shape according to our wishes; this environment becomes in the precox patient suddenly filled with mysterious meanings, it invades him at every point. He feels strange influences come in upon him from all sources, sources that he frequently cannot define, and sources which, when he does define them, remind us of the world of primitive man, peopled with its myriad of spirit forms and with little or no distinction between the animate and the inanimate. Voices speak to the precox patient, they come from the trees, and even from animals, for birds and dogs talk to him. Thus a patient hears voices talk to him from all sorts of sources. He hears the clock talking, the radiator talking; he can hear the creaking wagon as it goes by, talking; and even people's footsteps and the watch speak to him. He hears the human voice talking through the birds, leaves of the trees, flowers and various inanimate objects. He is disturbed by visions, and all sorts of magical things—electricity, wireless telegraphy, thought reading, and bad influences from certain people—play about him. His psychosis has plunged him to a lower cultural level and we find him reacting after methods that remind us of animism rather than of modern civilization.

All of these phenomena may be looked at as evidences of a lessened capacity for integration of the personality, of separating the self from the not-self. The environment has become strangely blended with the individuality by the process of introjection and as the environment thus introjects itself into the personality the personality correspondingly swells and loses its definiteness. One patient sees

a certain mystic significance in the arrangement of the stars about the moon; another has lost the feeling of personal identity with respect to his own body, for when asked when he entered the army said, "it was centuries and centuries ago; not I but a body just like my remembrance around 1903," while another patient believes his body is changing in size.

The sense of mystery is frequently expressed. One patient for a long time has been seeing peculiar objects, the nature of which were not clear to him; but of the auditory hallucinations he said they were not real voices but simply things which seemed to come into his mind. He also said he heard voices talking inside his head but thought that these were the expressions of his own mind. He still retains a grasp upon reality, although it is evident that his hold has become seriously loosened for his thoughts have become audible. This grasp was quite completely lost by the patient who believed that mental telepathy was "working upon him" and that he was regarded as a spy. He heard many voices saying all conceivable things against him, so that he grew desperate and attempted suicide. Asked to describe the auditory hallucinations, he says he cannot put his impression of them into words, that he did not hear distinct voices, but "foreign thoughts came slowly creeping into his brain, thoughts not his own, but emanating from the mind of someone at a distance." Upon one occasion he thought that a dream was projected upon him by a supervisor through "thought transmission."

The whole paranoid system can be viewed from this viewpoint of loss of touch with reality by an introversion which permits a fading out of the definiteness of the boundaries between individual and environment. The mechanism of projection is only possible because the individual has become so vague that he is able to project his own feelings into the environment and so account for them by causes coming from without himself. That whole group who are followed by a "gang" and whose food is "doped" belong here.

The vagueness with which a person may conceive of himself is shown by the patients who have no clear appreciation of who they are, who parade under someone else's name, claim to be some noted person, perhaps a criminal. This type of reaction becomes much more archaic when the identification is with historical personages. The extreme of this is found in a patient who practically identifies himself with the universe. Among other things he says he was Adam's father; that he has lived in his present bodily form thirty-

five years, but that he has lived in other bodies thirty millions of years, not continually but periodically; that he has used 6,000,000 different bodies. He says that he was Moses, that also he was the father of Moses and that he performed the ten miracles that liberated the people of Egypt. If he extended into the universe his left arm it would go inside heaven, also his left brain lobe. Paradise corresponds with the right arm and the right brain lobe. The headquarters of these two are in the forearms and in the brain "dot." The brain "dot" is something like the central office of a building, or it can be compared to a hand holding a bunch of strings to balloons which float above. Hell and Purgatory have corresponding positions in the two lower limbs. Tartarus and Gehenna correspond to the feet. Hades and Oblivion correspond to the knees. He says he is both male and female with one mind and body controlling both. He has to be one to be the father and creator of the various races and elements of the human organization. The stars in themselves are pieces of his body which have been torn apart by torture and persecution in various ages of past history in the wars between the righteous and the unrighteous. These stars will come down on earth in human form to bear witness for him towards the end of the millennium. And much more of the same sort wherein, among other things, he compares the structure of the solar system to the structure of the human body and identifies himself with portions of it. It took him 300 million years to perfect the first fully developed human form.

Such an archaic system of delusions points an analogy between the way the patient thinks of himself and the way in which the savage tribal king was regarded. The king was the individual in whom was concentrated all the great creative energy of their restricted universe. He was looked to to see that the rain fell and watered the crops, that the cattle and the women were fruitful, that the tribe was successful in war. It was because he was a carrier of enormous stores of energy that he must be treated as Frazer¹¹ puts it, like a Leyden jar. His foot must not touch the ground and the sun must not shine upon him or he would lose his power. Not only this but such a discharge of energy would be dangerous to those about. From this point of view, too, it is easy to see why the king

¹¹ Frazer: *The Golden Bough*, Pt. VII, Balder and Beautiful, Vol. I, Chap. I, Between Heaven and Earth.

must be well and strong and so why he must be killed¹² at the first appearance of weakness, yes even before any weakness whatever has had an opportunity to manifest itself, and a younger and stronger man put in his place.

Illustrations might be indefinitely multiplied. Those which have been given from the psychoses have been taken from the records of patients labeled dementia precox and they are of a character which I think goes to prove the second part of my thesis, viz., *the distinction which has grown up between individual and environment is broken down by introversion as is particularly well shown in the introversion type of psychosis, dementia precox.*

Of course, it is not intended to convey the idea that introversion brings about conditions that exactly reproduce stages in ontogenetic or philogenetic development. The application of the law of recapitulation to the sphere of the psyche is subject to the same sort of qualifications as it is in its application to the body. The law of recapitulation holds but with many variations in the way of abridgments and short cuts which distort the outward appearances at times very greatly. The viewpoint it is believed is a valuable one, but in its application the process of thinking should be kept in mind rather than the content of thought. The view maintained here is that in the introversion types of psychoses the patient reverts to ways of thinking that belong to earlier stages of development. Introversion brings about a less clearly defined individuality and a greater range of identification with the environment. Withdrawal from reality is a withdrawal from contact at higher levels but a return to a phylogenetically older and more diffuse form of contact.

Perhaps the most important implication of the viewpoint set forth is that the individual and the environment are not mutually exclusive. They exist rather as a relation. In current biological thought, in theories of heredity upon which the eugenists are basing their recommendations, in questions of education they are treated as absolutely distinct one from the other. One is reminded of the old, old question of the relation between body and mind and the theory of parallelism. Both, I believe, belong to that large group of what I call pseudo-problems with which philosophy is so replete. What constitutes the individual? What constitutes the environment? Who shall say? They are the two elements of a dynamic relation, of a constant interplay of forces, in which their relative values are in

¹² Frazer: *The Dying God*, l. c.

a constant state of flux.¹³ The answer can never be anything but arbitrary. But if the question and the arbitrary elements in the answer are understood all is well. The intellect is always seeking for concrete finality. It is all right to seek but if for a moment the belief is entertained that it has been found then a pseudo-problem is sure to arise. Our concepts should not be allowed to become crystallized. They should be in a constant state of flux, so that they may be always adjustable. That to my mind is the value of the viewpoint I have set forth.

The child and the savage in attributing life and personality to the not living are right from the standpoint of their level of culture inasmuch as the environment gains its value to us from our own libido, that is, from the measure of our own interest in it. In the psychoses this interest belongs to a cultural level that, under the existing circumstances of the patient, has no pragmatic value but is, on the contrary, destructive because tending to isolate him from the herd and so make the fulfillment of his best self impossible because destroying his power to coöperate with his fellows. It is essentially autoerotic. The individual who has become seriously introverted has become sidetracked from the path of progress and so literally become less an individual.

¹³ Child, C. M.: The Basis of Physiological Individuality in Organisms, Science, April 14, 1916. In this exceedingly interesting paper the author develops the hypothesis of a dynamic or metabolic gradient as the Anlage of the physiological individual. From this physiological axis, the chief, polar, or major axis, minor axes are established, *i.e.*, symmetry. Remaining within the control of this dynamic gradient is all that constitutes the individual. A group of cells may establish their own independent gradient and so become a new individual. This is perhaps one of the determiners of cancer formation.

V

PRIMITIVE MENTALLY AND THE RACIAL UNCONSCIOUS *

The subject I want to discuss to-day is the constitution of consciousness from some points of view that are somewhat more recent than those that have been definitely formulated in former literature. I am going to diagram consciousness in an exceedingly simple way as a triangle with the base down. I am going to refer to this part of the triangle (indicating apex) as the region of awareness. It is not necessary to discuss it; we are all familiar with it. Then beneath the region of awareness, right down here (indicating), is the region of the foreconscious which contains all sorts of material, but that material is characterized by the fact that it is available and accessible at any time by the individual and so to use Jung's language it might as well be conscious, and might as well occupy this region. It is available whenever the individual wishes it. Beneath this region lies the territory we are particularly interested in to-day. In the first place there is the upper part of this region which is designated as the personal unconscious and which is called the unconscious by the Freudians, and contains the material which, in a psychoanalytic sense, has once occupied the upper, conscious region and then been repressed or shoved back into this region which is called the psychoanalytic or personal unconscious. You are familiar with it. Then there is the region here, which is also unconscious, lying beneath the region of the personal unconscious which Jung calls the collective unconscious, but which is better designated as the racial unconscious and constitutes the philogenetic background upon which the rest of the psychic material is erected, so to speak, as a superstructure.

Now, we therefore have two regions, the personal and the racial unconscious, which can be collectively designated as the unconscious. Just a few words about the unconscious region, even if I do not split it up any further. That unconscious region you will say is composed

* Read at the eightieth annual meeting of The American Psychiatric Association, Atlantic City, N. J., June 3, 4, 5, 6, 1924.

of two separate types of experiences; certain material here which has once occupied the foreconscious, and has been experienced within the lifetime of the individual; and certain material down here which has never occupied that position within the lifetime of the individual, but has only occupied such a position within the lifetime of the race. It is to me quite as obvious that there must be this racial psychological background as that there should be any other kind of

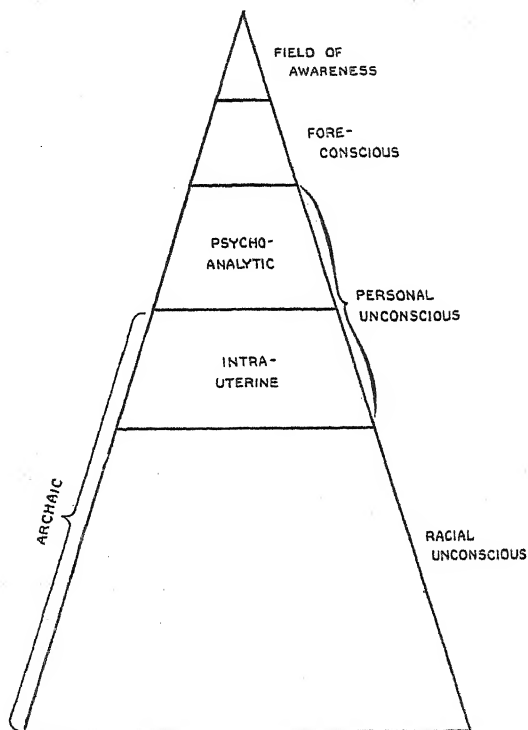


FIG. 1. Regions of Consciousness.

developmental background, functional or anatomical. Take, for instance, an example from the language of savages. They do not count by units, but they count in collective fashion using as the measure of number an expression which means the hand and which if we translate it would be the number five, and so when they see any group that corresponds in number to the number of fingers on the hand, they use the word which corresponds to hand to designate the number in that group, and so five would be expressed by

one hand; ten by two hands; fifteen by two hands and a foot and twenty by an expression meaning the whole man. Now the interesting thing is that we have projected into our present civilization precisely such methods of counting. We have it in the expression four-score and precisely that method of counting is preserved in the French *quatre vingt*. We have also the same method of counting preserved in the Roman numerals; five, if you will, or one hand; ten or two hands; fifteen two hands and the foot and twenty the whole man. Here are the hands and here are the feet. (Indicating on the blackboard Roman numeral XX.)

Now, of course, it might seem that this is personal material that was transmitted from parent to child, but it seems quite obvious to me that that is an incomplete explanation. We can only reach a complete explanation of this conscious phenomenon by interpreting it in the history of the development of counting through the race and the translation of the words which the savages used. So here in the use of Roman numerals and in the use of the method of counting by twenties, we have preserved in language two components, neither of which belongs in the individual experience of the person so counting, one handed down to him through the parents, which is the personal component, and occurs in this region of the consciousness and the other an unconscious component from the racial experience which is a part of the racial inheritance. So I believe that in any end result of activity, either thinking, feeling or acting, if we had time and opportunity we could trace two components; one, the component that was in the experience of the individual and the other the component traceable to the experience of the race; and one of the points I want to make is, that only this personal material is analyzable and that the racial material cannot be analyzed. It can only be interpreted by methods of comparison. That is one of the aspects of what I believe is the new method that needs to come into psychiatry, viz., the comparative method I have talked of recently. So much for that.

There is another feature of the situation which I wish to call attention to in this connection and that is that in most of our recent psychiatry, whether descriptive or analytic psychiatry, the method of investigation that has been used is based, perhaps not exclusively but nearly so, on the perceptive components of consciousness to the exclusion very largely of the projicient, motor, expressive or emissive components. In other words the method of study has been based upon content very largely rather than upon process.

Now a study of both the personal and racial unconscious gives us the data for supplementing this work upon the perceptive and receptive aspects of consciousness by corresponding work upon the emissive side. There has been very little work done along this line, but I would like to call your attention to one discipline that has been engaged particularly in the study of the expressive side of consciousness now for a century, which is not recognized by psychiatrists; that is the discipline of comparative philology. Philology has been a well recognized discipline now for a hundred years and it has very many interesting and important deductions and conclusions which are valuable, I think, to psychiatry. Just let me indicate along this line some of the things which philology suggests as being of significance: We know that the distinction or one of the distinctions between the child and the adult; one of the distinctions between the defective and the person not defective; one of the distinctions between the savage and the civilized, is that in each instance the more highly developed individual tends in his thinking to be more abstract and less concrete; tends in his thinking to differentiate unrelated and to relate analogous situations more accurately than do those of less development. Take, for example, in the language of the savage, the expression meaning, "I am washing my face." Here is a definite sentence composed of several words. Vary it a bit and say, "she is washing her face," and they have to use an entirely different sentence made up of entirely different words. Here is a primitive language situation which corresponds precisely to the manner of language of the more primitive types of people.

Take for example a little girl who is asked "What is a wagon?" and she answers, "a wagon is, you take a whip, you pick up the reins, hit the horse and away you go." What the little girl is doing here is expressing the entire situation as she sees it or the only situation in which she has become familiar with the wagon, and so when asked what a wagon is, she tells the whole situation. If asked what a horse was she might say the same thing. There would be no relationship between the two but it would be a corresponding situation. Every concrete situation has to be definitely expressed by a concrete series of words formulated quite separately from every other situation. You see how different that is from the more developed inflectional languages with which we are familiar. Language, just like thinking, has developed from this undifferentiated state into a highly differentiated one. Take for example the word "cut."

It can be used almost like a letter; it can be used as a noun, an adjective, a verb; it can be used in the present, past and future tenses; the subjunctive, imperative or indicative mode. The different modes and tenses and parts of speech are all expressed by the same word.

Take for example, if the primitive wishes to speak of groups of different types of animals; a group of birds, a group of oxen, he would have to use entirely different words to express them. There is a remnant of this method left us to this day. We speak of a flock of pigeons, a covey of partridges and a herd of cattle, etc., but in more advanced language, we no longer have to resort to such concrete processes of expression. To distinguish between male and female we no longer use different words. We say count, and add "ess" for countess, so we do not have to use entirely different expressions. We have here differences in the process of thinking which are exemplified in language which correspond to the process of thinking in savages, children and so on.

Now on the motor side I would like to call your attention to the fact of the increasing interest of general neurology in the motor aspects of diseases of the nervous system. You have recently heard Dr. Goodhart give his paper in which he analyzed a lot of the postencephalitic disturbances. You are familiar with Wilson's disease which has only in recent years been described and which is a motor disease. You are familiar with the extrapyramidal syndromes which have only recently been stressed. I might mention a number of neurologic conditions which have been differentiated in recent years which testify to this increasing interest in the motor as opposed to the sensory side of the nervous system.

When I went to medical college, the only motor disturbances described were the motor disturbances of pyramidal lesions. Now we have all these and a host of extrapyramidal motor disturbances so that there is in the general neurological field a tendency to devote more time to these aspects of the motor system and we find philology itself has certain suggestions to make. For example, if we could understand something of the development of language, we will find that if we study carefully the way in which the different phonetic sounds have come into use, they can be compared with the past history of the material involved. The psychologists for example, are telling us that presumably the almost universal early appearance of such words as mama and papa in the child's vocabulary is presumably related to the fact that these labials are used because the child first

used his lip muscles in sucking, and so the psychologist is able to throw some light upon the development of certain emissive tendencies of the infant.

There is another aspect of this whole situation which I will designate by a cross down here (indicating) and that cross I will call the intrauterine period. Now you know that the psychoanalysts have always talked more or less about dreams and fantasies of the matrix as a desire to get back into the past, into the uterus, and many of those who have not devoted a great deal of thought to psychoanalysis have thought it was pretty wild talk and a long ways from home, so to speak. We are beginning to get some light upon what happens in the fetus during this intrauterine period. I know perfectly well that in this region we must still resort largely to speculation. I have not the slightest quarrel with speculation, however, so long as when we use it we know what we are using, because we cannot find out anything without thinking. When we do know about it and begin to think, then slowly certain elements appear to either correct or supplement our speculation and we get at new ideas. Now in this whole uterine period, there is a great deal of what the Freudians have already speculated upon, viz., skin stimulation. They believe that the skin region receives a good deal of stimulation naturally because it is exposed to the environment. There is good reason to believe that practically all the special senses, as hearing, seeing, taste, smell, all receive stimulation in the uterus and there is experimental material upon which these conclusions are founded. There is also a considerable amount of new material being added to our knowledge with regard to what may happen in this intrauterine period which is coming to us from a new source—comparative anatomy. The neuroanatomists believe that the true function of anatomy is not solely to show the actual concrete relation of one part of the body to another, but only in connection with function. A lot of light is being thrown upon the time period at least when functions may first become active. For example, of the five special sense organs, it is obvious their function cannot be postulated until the structure has been laid down in the embryo.

In the method of Dr. Kappers, in studying what he calls neurobiotaxis, there is a very definite correlation between the anatomical situations and the actual functional probabilities at least which can be reasoned from them.

We have, therefore, these several regions of consciousness all of which are specific and are proper matter for study. The field

of awareness, the foreconscious, the personal unconscious, intra-uterine and psychoanalytic and the racial unconscious, and I call attention to the fact that these lines are not intended to separate these one from another, but merely to indicate, in general, the regions about which I speak because I believe, as I told you about language, that consciousness must necessarily contain components that come from all these sources. I think of them as being related to each other much as the strands of a rope are interwoven and as the rope is twisted like the chromosome threads in those pretty pictures Professor Morgan shows of the relative position of the determiners in his fruit flies. I would suggest, therefore, as a legitimate subject for thought and investigation, the possibility of differentiating material in the end result which is contributed as personal experience of the individual, that which is beneath his personal experience, which is unconscious and is contributed by the race.

In some of our most malignant psychoses, particularly of course precox types, we find material which suggests this region from here down (indicating) and I prefer to designate all of the material from here down that goes into the psychic picture, the intrauterine and racial unconscious, as archaic, and I think the prognostic significance of things which we do not understand, we will begin to understand when we understand what archaic material really is. For example, on the motor side of the situation, I can not be unmindful or cannot consider as unimportant, the fact that some of our precox patients occupy motor attitudes that have given rise to the term, Egyptian attitude, because we see this same attitude in the figures of Egyptian sculpture, and I believe that such a motor attitude must be deeper seated than the personal experiences of the individual, that have taken place since birth.

I could give you a considerable number of illustrations to prove this is not wholly speculative, that there is a lot of material upon which we might make a beginning. I am reminded of some papers we had the other night. I recall to your mind the more or less generally conceded explanation of our sense of time as probably having been generated in this intrauterine period by the fact that the child in utero is constantly and for a considerable period in reception of auditory stimuli from the heart beat of the mother, and I can perhaps close by telling an interesting story about one of the writers of jazz music. Dr. Jelliffe was speculating in a discussion at a medical meeting upon how he had developed such an unusual time sense, and he suggested that his mother might have had cardiac

disease. (Laughter.) You have done what I wanted you to, you have laughed. He made this suggestion in a meeting such as this, and when he sat down, a physician arose who said he had been the physician who had attended her, and that she had had a chronic heart disease; and that he had treated her for it and she had died of it. I refrain from giving any more examples. I will close by reemphasizing the various regions of consciousness and emphasizing in addition what I have expressed before, viz., that the psyche is necessarily as old as the body; it has therefore its comparative anatomy just like the body and it is no more difficult matter to think in terms of its history through its different levels than it is to trace anatomical formations back through various types of related species to their origins. I think until we are willing to look at consciousness in this sort of way we will not fathom the deeper problems of mental disease and then, too, when we do, we will also begin to understand some of the phenomena which take place at the several levels, and can correlate descriptive material way up here with other material and reach certain coherent conclusions. One individual may perhaps describe somethings at one level and another at another level and it sounds exactly as if they were talking about entirely different things and yet the two things may be related in all sorts of ways which very frequently some of the speakers have not the remotest conception of, and a lot of apparent differences in thinking may be smoothed out in this way by showing that we are really expressing ourselves at these different levels.

I could not possibly express anything at this level (indicating) that would be understandable at this level (indicating). If I talk of something at this point, the man up here knows nothing about it, and the further down we go the more difficult it is, and after all our whole problem of descriptive psychiatry is largely one of translating the language of the psychoses. In this way of looking at things, we have some conception of the history of the psyche, the psychiatric situation and the racial background of consciousness.

VI

TWO DEFLECTING TRADITIONS *

I entered the specialty of psychiatry thirty-three years ago. This period of time constituted in those days pretty nearly a generation and therefore perhaps I may be permitted to speak of the progress of this medical specialty as it has occurred in my own experience. I went into the service on the medical staff of our late beloved Dr. Charles G. Wagner. It is enough to make this statement to have you know that from the very first I was under the influence of the very best ideals of hospital management as developed by this able executive. The specialty of psychiatry, however, in those days was a rather colorless and uninteresting department of medicine, in which little was happening. Students were not attracted to it because such information as they did get about it indicated that it was dry and stupid and somewhat mysterious. Those who were engaged in it were credited with a learning which they did not have but which they had frequently to assume. In those days if we really wanted to know something about a patient we asked the supervisor, who had been on the wards with him for years and who could paint a very much better behavioristic picture than the average ward physician although perhaps he could not bring to bear so many technical lights and shades. The tradition of the histopathologist of the Utica State Hospital was still among us and the average hospital psychiatrist, for there were none others, expected somehow, some way, some when, to discover the cause of "insanity," as they used to call it, in the cortex. Aside from this more or less mystical quest there were no pathways and there were no biological concepts that were sufficient as guides. Early in this period there was a definite move, which had a therapeutic goal but also an etiological one, to turn all the state hospitals into general hospitals and to treat the patients as they came in just as they would be treated in a general hospital. You know the history of this movement. It is just another one of those stories of the failure to find something without having a definite idea of what one is looking for. However, as you also well know,

* Extract from Presidential Address, American Psychiatric Association, Richmond, Va., May 12-15, 1925. Am. Jour. Psychiatry, July, 1925.

this movement had another effect for which it was not originally intended. It did improve the condition of the hospitals very materially and was largely responsible for introducing the trained nurse in the care of the insane. These two movements, the one to find the explanation of mental disease in the cortex and the other to find its cause by the methods of internal medicine, are typical of two traditions with which psychiatry was handicapped for many, many years and which prevented any advance in this department of medicine. It is only in the beginning of this present century that we can begin to see psychiatry overcoming these impedimenta. I think it would be worth while to spend a few moments in examining these traditions.

The first of these traditions to which I have referred I might designate as the tradition which degraded the human body.

"The notion of the pure soul imprisoned in a material and sensual body, and strained by the base appetites of the latter, was current amongst the Greeks for five centuries before Christ."¹

However, this attitude toward the body was very materially emphasized by the Christians. Among the Greeks, for example, we know how the human body was regarded as beautiful and as an object of art.

"The glory of the human body was the central conception of art, and nakedness was associated rather with dignity than with shame. The gods, it was emphatically said, were naked. To represent an emperor naked was deemed the highest form of flattery, because it was to represent his apotheosis. * * *

"It is easy to perceive how favorable such a state of feeling must have been to the development of art, and no less easy to see how contrary it was to the spirit of a religion which for many centuries made the suppression of all bodily passions the central notion of sanctity. * * * Of the orthodox saints, some made it their especial boast that for many years they had never seen their own bodies, others mutilated themselves in order more completely to restrain their passions, others labored with the same object by scourgings and fastings, and horrible penances. All regarded the body as an unmingled evil, its passions and its beauty as the most deadly of temptations."²

I need not dwell further upon this well known attitude of early Christianity and of mediaevalism. It might be elaborated indefinitely. One of its ramifications is seen in the medicine of the Middle Ages,

¹ Sumner. Folkways.

² Lecky. Rationalism in Europe.

which for a long time classified surgery among the manual arts and crafts, so belittling its importance in the general profession of medicine that it was "relegated to the unscrupulous hands of barbers and mercenary quacks."³

The whole trend of medicine, its whole emotional background, tended therefore to make the physician seek in the body for the causes of evil, be they sin or disease. In fact it is the note that dominates medicine to this day and was undoubtedly the factor that led to the everlasting quest for the solution of the riddle of "insanity" by the microscopic examination of the cortex. We are only beginning to learn that we never will find delusions by looking through the microscope. This tradition which thought in terms of the "lust of the flesh" and the "fruit of the Spirit"⁴ stood as a constant obstacle to any recognition of psychogenic factors in the understanding of mental mechanisms.

The other tradition to which I refer is the tradition of the invariable origin of disaster from without. To the primitive mind death and disease are always accidental or produced by malevolent influences. They are not natural consequences and therefore there is no reason in the nature of things why anyone should either die or be sick. Man refuses, as long as he can, to face these twin realities. In fact he never yet has really faced them, because after all for each of us death remains something that we hope to avert or can not conceive of meeting or at least think of only in terms of the other fellow.

The physician, in my opinion, has come into being in response to the wish of mankind for immortality. He represents the incarnation of man's desire for health and continued life. I can give no better illustration of this viewpoint than to quote one of the paragraphs from the Code of Hammurabi, which reads as follows:

"If a physician operate on a man for a severe wound with a bronze lancet and cause the man's death; or open an abscess (in the eye) of a man with a bronze lancet and destroy the man's eye, they shall cut off his fingers."

It seems to me this paragraph speaks perfectly plainly. Man creates the physician to insure his health and continued life, and he is so sure that death and disease or accident are due to malevolent influences that he can actually believe that he can insure his own health and happiness by providing penalties for the physician's failure.

³ Barton. *Medicine*.

⁴ Galat. v:16,22.

The physician must, under the pain of severe punishment, keep him well and keep him alive. It is in the physician's power to do this because man wants it to be in his power to do it and refuses to think for a moment that it may not be.

Disease and death, therefore, always have their origin outside. They are not inherent in the nature of man. This is exemplified when we come to the Middle Ages by the theory of disease being due to the presence of evil spirits. If a man was sick it was because some devil took up his residence in his body. The therapeutic problem was to get rid of the devil. Concrete, materialistic, crude as it was, this theory has its perfect development in the nineteenth century in the germ theory of disease. Whatever blessings, and they are innumerable, the discovery of pathogenic microorganisms may have brought to mankind, the germ theory of disease with its tradition of mediaeval devils behind it, like the other tradition of the sinfulness of the flesh, has stood in the way consistently of advances in the realm of psychiatry. Just as the theory that the body must be responsible for disease has deflected the vision from the mind, where the actual trouble is taking place, to the body, from subtle psychological mechanisms to much more concrete and tangible changes in the somatic structure, just so has the theory of infection and toxemia diverted the vision again from the psyche, in this case to etiological factors outside of the body. So it is little wonder that with these two traditions diverting the vision from the central situation to the outlying regions psychiatry should have had a difficult time and should have been such a backward department of medicine.

All this, however, has changed or is rapidly changing. It has been my privilege to live through almost the entire modern constructive period of psychiatry. Thirty-three years ago no suspicion of what was going to happen had come into the mind of anyone. Then about this time the French school under the leadership of Professor Janet, who followed the illustrious work of Bernheim and Liébault, demonstrated the psychological factors in hysteria. Contemporaneously Kraepelin, first at Heidelberg and later at Munich, brought out his magnificent studies of the life histories of the psychoses, with emphasis upon their course and outcome. All this and much more paved the way for the new order of things that was soon to come about as the nineteenth century merged into the twentieth, and for this order of things we have one man to thank more than anyone else in all the world, and that is Professor Freud and his method of psychoanalysis.

I am not at this time going to undertake to defend psychoanalysis,

I do not believe that it any longer needs defending, but I do wish to emphasize, as it has been my privilege to do over and over again, the truth and the significance of this movement in which all the little petty details and squabbles and differences of opinion are swallowed up. Here we have for the first time a grasp of the biological significance of the psyche and of the fundamental ways in which it works. Unfortunately all this work has been expressed through a terminology that has given abundant opportunity for criticism. The growth of the psychoanalytic movement, founded as it was in a perfectly concrete relationship of doctor and patient, is very similar in many respects to the growth and development of the social hygiene movement. Psychoanalysis has long since developed beyond the simples of its first beginnings and now represents a body of thought without the utilization of which no psychiatrist can longer understand his problems. Such mechanisms as repression, condensation, identification, projection, and such concepts as ambivalence, the unconscious, archaic reactions and paleopsychology are of inestimable and profound significance and importance for psychiatry.

Since the advent of psychoanalysis we for the first time have our vision directed to where the real trouble has taken place, and our interest centered upon the actual mechanisms that are producing the symptoms. We understand that the deflection of our vision to the body or to the infectious organism are but examples of that mechanism of projection with which we have become so familiar, and that it was because of the emotional necessity for seeing causes elsewhere than in ourselves that we for so many centuries have been unable to face the facts of our own mental life. The tendency to refer all mental diseases to either a somatic or an infectious etiology is, I believe, a regressive tendency in psychiatry. Of course, I do not want to be understood as saying that physical disease or infection play no part in the etiology of the psychoses, although I am not at all sure that such a thesis might not be entertained. Still we are hardly ready for such an extreme position as yet. But the very fact that there are organs that should be removed in whole or in part makes it all the more difficult to discover and to overcome the compromises with tradition and superstition which are hidden behind the concept of infection or the enucleating operations of surgery. The emphasis is undoubtedly for the first time where it belongs, and when I said that perhaps a thesis could be maintained that would eliminate the consideration of the soma or the pathogenic organism as etiological factors in mental disease I had in mind that one of the results of

this new point of view has been, I won't say the development because matters have not gone far enough perhaps to warrant such a phrase, but the beginning of the development, at least, of a theory of disease, speaking in the large, which for the first time looks as if we might be able to compass the understanding of what we have heretofore spoken of as pathological and abnormal, two terms which have always carried an implication that the things to which they refer were in some way outside of the natural order of things.

I have said for some time that specialization in medicine was rapidly approaching the point of saturation. Medicine will not be able to maintain very many more specialties under the existing state of affairs. More specialties, if other things are not changed too, will soon mean disintegration. What medicine needs more than anything else in this day and age is the synthetic type of mind. Analysis, splitting up into specialties, has been the order for a generation, and there are almost no men in the country who are able to compass in any effective way the work of all these specialties and reintegrate them into a picture of the individual which is usable therapeutically. Now psychiatry stands in a peculiarly favorable tactical position with reference to this possibility. Psychiatry is the only medical specialty that demands for its backgrounding the whole of medicine because it is the only medical specialty that deals with the whole individual. Internal medicine has consistently, as have the other specialties, left the psyche out of consideration. The psychiatrist has to consider the psyche primarily and he has also to take the body into consideration, and taking the body into consideration means the whole of medicine. So the psychiatrist for the first time is a specialist in the reactions of the organism as a whole and those reactions he can not understand unless he knows all parts of the organism. I believe, therefore, that psychiatry in its new development will come to occupy a position of surpassing importance in medicine, and I know from my own personal experience of the last thirty-three years that no medical specialty has begun to progress with the rapidity of psychiatry. In these thirty-three years psychiatry has made up for the time it lost throughout the hundreds of years when it remained stationary, for to-day it occupies a position on all fours with any other medical specialty and has numbered in the ranks of its followers men of at least equal ability and in equal numbers to most, at least, of the other specialties, whereas in numbers of patients it outdoes them all.

VII

THE SIGNIFICANCE OF PSYCHOPATHOLOGY FOR GENERAL SOMATIC PATHOLOGY *

The questions of the nature of the mind and the relations of mind and body are perhaps as old as medicine, and the latter at least has been the subject of untold discussions and theorizing. I have undertaken to show elsewhere ¹ that by mind is meant total reactions. The ultimate nature of anything is impossible to compass, but mind, mental, and psychological are terms used to express those reactions of the organism which are total in character. Whenever we speak of the reactions of the organism as a whole, whenever we express what the organism as a biological unity is doing as such a unity, we necessarily are forced to the use of terms which are psychological.

I have also emphasized ² that, from this point of view, namely, that *mental reactions are total reactions, the mind is as old as the body*, has a past of equal length and significance; and, because it is only one aspect of the individual as a whole, that the discussion of the relations of mind and body implies a separation which does not in fact exist and that therefore the body-mind problem is not a real problem at all but, as I prefer to call it, a pseudo-problem.

From this point of view, therefore, any circumstance or condition of the organism may be viewed from the psychological as well as the somatic angle; and the organism as a whole, in reference to any such circumstances or conditions, may present as well a psychological as a somatic aspect.

The fact that for the most part, in the past, it has been the somatic aspect that has attracted attention rather than the psychological, is due to factors and reasons that it is not my intention to discuss at this time. I desire only to emphasize that it is no longer sufficient to think only of the somatic factors in an organism that is integrated to function as a whole, but that the psychological com-

* Read at a meeting of the New York Psychiatric Society, March 5, 1925. Jour. Nerv. and Ment. Dis., Vol. 61, No. 3, March, 1925.

¹ Foundations of Psychiatry. Nervous and Mental Dis. Mon. Series No. 32. Introduction to the Study of Mind. Nervous and Mental Disease Mon. Series No. 38.

² Loc. cit.

ponents are as much a part and parcel of the various circumstances and conditions as the somatic and therefore entitled to at least as much consideration. In fact I shall attempt to show how a consideration of these psychological components is capable of throwing light upon conditions that otherwise seem impossible of explanation, in the same way, at least, that a broad survey of a field will often disclose the meaning of minor details that would be without meaning if noted by themselves alone because the broad survey discloses their relations to the whole and it is as related parts alone that they possess meaning.

There have always been, in the history of medicine, numerous examples of the so-called influence of mind on body. Many of the examples cited have been very dramatic and mysterious, as for example the instances of hysterical stigmata, the bloody tears, marks of the nails on hands and feet corresponding in locality to the wounds of Christ, and instances of blisters produced by suggestion the result of the application of a metal said by the hypnotizer to be red hot. I do not propose to discuss these, as obviously they for the most part occurred under conditions that do not lend themselves to an understanding of just how they might have come about. No doubt they were often the result of self-inflicted wounds which the superstitious state of mind of the observers made it impossible for them to interpret in this way.

I have in mind the experiences of many psychotherapists that certain physical symptoms get better or clear up entirely as the result of psychotherapy alone, as the sort of observations that have led to a consideration of this whole subject. Some of the instances are, too, perhaps, not explainable by our present knowledge, but at least they have served to direct attention anew to the whole problem but from the new and broader point of view indicated.

The difficulty has been in the past that what was psychological has been thought of too much in terms of ideas and psychological reactions in terms of language, while reactions at the psychological level that went over into conduct were thought of in terms of facial expression and the voluntary musculature. Mind has been thought of too much as receptive and too little as emissive; and mental reactions were taken too much at their face value as formulated in language and there was too little appreciation of the value of other forms of expression, particularly by means of the unstripped muscles and vegetative nervous system. There has been very little appreciation of the possibilities of interpreting the

psychological component by interrogating visceral functions or bodily attitudes, while purpose as it may outcrop from such situations has been too often minimized by damning it as teleological.

It is my belief that the time has come when it may be profitable to reconsider this whole field, to gather pertinent clinical facts that have been disclosed by the modern methods and to see if a new point of view, such as I have indicated, may not result in a better understanding of such facts and an appreciation of their meaning, especially if they can all be tied together by an hypothesis that sufficiently accounts for the facts and which, too, is pregnant in suggestion for further investigation and interpretation in still unexplored territory.

The starting point that I shall take will be the principles already indicated and elsewhere elaborated,³ namely, that the psyche is an expression of the organism as a whole and therefore the psyche is as old as the soma and has the same extent of history and development. So long as we discuss the functions of the parts of an organism we are in the region of physiology; so soon as we discuss the functions of the organism as a whole we are in the region of psychology.

From this point of view it is evident that inasmuch as each part of the organism, each organ, goes into and helps form the organism as a whole, is one of the parts the integration of which forms the whole, that each part, each organ, must contribute something to the final pattern of the whole, must, in other words, in some way be represented in the psyche, must subtend a certain psychological component. For every disease, or for that matter for every state of the organism, there must be, therefore, as well a psychic as a somatic component, which means among other things that when looked at from the point of view of its parts as integrated it presents psychic factors.

The conception implies psychic as well as somatic determinism, quite necessary postulates, as otherwise we have to admit chance, which means that in the region where chance is operative no explanation will ever be reached. Apart, therefore, from any theory of individual determination, "free will," or determinism in a metaphysical sense, the belief in determinism in the psychic sphere as well as elsewhere is essential to progress for without that belief there would be no incentive to further inquiry. Aside, therefore, from its metaphysical bearings, determinism is a pragmatically necessary assumption.

³ Loc. cit.

Now before entering into any hypothesis or explanation of any psycho-physical correlations I may say to begin with that they have been noted time and time again through the ages but that I shall not consider here any example before those noted in connection with psychoanalysis.

Of course the most obvious of the apparently physical disabilities to be explained psychologically are those the result of conversion hysteria. Here is a long list of symptoms a great many of which, the paralyses and anesthetics, have long been more or less well recognized as of psychogenic origin, to the extent at least that they were known to be hysterical. Even less obvious symptoms, such as paralyses and anesthetics in the distribution of the cranial nerves, facial palsies, blindness, ageusia, deafness, have been recognized as hysterical, as have also still more obscure symptoms such as the false pregnancies and phantom tumors. While such symptoms as these have long been recognized as hysterical in origin, their mechanism has only recently come to be understood as a result of the work of the French School in which Janet is the most notable figure, and more recently of the Psychoanalytic School in its study of the phenomena to which it gave the name of conversion hysteria.

Aside from such symptoms as these, that are generally accepted to be hysterical and therefore psychogenic in origin, there is a host of other symptoms that are usually classified as psychoneurotic or more generally as functional, that are not hysterical in character and not by any means so obviously psychogenic. These symptoms include all sorts of manifestations of disordered function of the various systems of organs—the circulatory, gastro-intestinal, genito-urinary, respiratory, cutaneous, and neuro-muscular—and include also such more general symptoms as insomnia, headache, vertigo, and, in general, neurasthenia.⁴

If we look for further light in this territory, especially for an understanding of mechanisms, we will find that a very considerable group of cases that used originally to be classed altogether under the very general term psychoneuroses or functional neuroses are found to belong to the anxiety neurosis as Freud first described it, and also as it has come to be thought of more recently, that is, as containing far more psychogenic material than Freud originally thought. In

⁴ See Dejerine and Gauckler. *The Psychoneuroses and Their Treatment by Psychotherapy*. Tr. by S. E. Jelliffe. Lippincott, Philadelphia, 1913.

Freud's original description⁶ of anxiety neurosis as an actual neurosis, as distinguished from a psychoneurosis, he included as symptoms cardiac arrhythmia, tachycardia, dyspnea, asthma-like attacks, profuse perspiration, trembling, inordinate appetite, diarrhea, vasomotor neurasthenia, paresthesias, vertigo. These symptoms were explained as due to a "free-floating anxiety" which originates at the physiological level of function but which may attach itself to anything that is handy, including ideas, and therefore appear to be of psychic origin.

If we turn to Stekel,⁶ who definitely believes in the psychic origin of the anxiety neurosis, or anxiety hysteria as he prefers to call it, we will find a similar comprehensive list of symptoms traceable to anxiety; namely, symptoms referable to the heart, to the respiratory system, the gastro-intestinal system, fainting, vertigo, trembling, parasthesias, vasomotor phenomena, disturbances of nutrition, cramps, pains, sleeplessness. All these he believes due to an inadequate, unsatisfactory sexual expression, or, in other words, they are of sexual etiology.

Adler, in a fascinating hypothesis,⁷ which unfortunately has not as yet been adequately developed, believes that a "feeling of inferiority" is at the basis of the neuroses and that this feeling of inferiority is dependent upon an inferior organ or organs that are not, therefore, up to full functional capacity. The implication that an inferior organ subtends a psychic inferiority in that region contributed to by the organ in question fits in well with the "organism as a whole" point of view and my elaboration along these lines.

Kempf⁸ attempted the explanation by a more dynamic formulation in which he attributes to the strivings, not so much of the separate organs, but of the body segments, a rivalry for the control of conduct and so the gaining of satisfactions. The rebellious segment must be fought and conquered by throwing it out of gear (repression) and the symptoms are traceable to its efforts to "come back."

Later Freud came to a full recognition of the importance of the

⁶ Jelliffe and White. *Diseases of the Nervous System*. Lea and Febiger (4th Edit.), Philadelphia, 1923.

⁶ Stekel, W. *Conditions of Nervous Anxiety and Their Treatment*. Dodd, Mead & Co., New York, 1923.

⁷ See X. The Adlerian Concept of the Neuroses. *Jl. Abnorm. Psychology*, August, 1917, and Adler. *Organ Inferiority and Its Psychological Compensation*. *Nervous and Mental Disease Monograph Series No. 24*.

⁸ Kempf. *The Autonomic Functions and the Personality*. *Nervous and Mental Disease Monograph Series No. 28*; critical review by White. *The Psychoanalytic Review*, January, 1919.

organic and discussed the whole subject of the investment of organs with libido under the general caption of narcissism or narcissistic libido. This conception was immediately applied to conditions previously not understandable in the terms of the original libido theory, particularly to the malignant schizophrenias by Freud, to the tics by Ferenczi,⁹ and to paresis by Hollós and Ferenczi.¹⁰ This whole question of the libidinal investment of organs has come to be of great importance in the understanding of these conditions and of the classical hypochondria in its various forms. The understanding of this subject will, of course, go a long way in assisting in the differentiation of functional from organic conditions and towards developing a rational therapy.

Rank¹¹ sees in all these symptoms anxiety as fundamental. Birth for the first time seriously upsets the libido equilibrium and effort is immediately exerted to its restoration. The first object of libidinal investiture is the mother, and the mother is, therefore, looked to as a means of restoring the equilibrium. Libido is thus originally and fundamentally mother libido, and the gaining of mother libido becomes at once the chief business of life and in fact remains so. The upsetting of libidinal equilibrium produces anxiety; the mother is sought, at first actually, later symbolically, to restore that equilibrium. Life becomes, therefore, a series of anxiety states, and success is the result of being able to find mother libido at an acceptable social level. All the symptoms previously maintained are explained by him as symptoms or expressions of anxiety.

Thus we see conversion hysteria, anxiety-neurosis, anxiety hysteria, tics, hypochondria, neurasthenia, as representing the catalogue of conditions in which somatic disorders are dependent upon psychogenic factors. In a general way the psychogenesis of these conditions has been known for a long while. Janet, for example, made most important contributions to the understanding of hysteria, and to proving hysteria to be a psychic disorder, but it was psychoanalysis that was finally able to answer, with some degree of satisfaction at least, why the neurosis or psychosis took the particular form

⁹ Ferenczi, S. Psychoanalytic Observations on Tic. *Internat. Jour. of Psycho-Analysis*, March, 1921.

¹⁰ Hollós and Ferenczi. Psychoanalysis and the Psychic Disorders of General Paresis. *The Psychoanalytic Review*, January and April, 1925, and No. 42 of this series.

¹¹ Rank, O. *Das Trauma des Geburt*. *Internat. Psychoanalyt. Verlag*, 1924, and *Entwicklungsziele der Psychoanalyse*, in English translation in the *Nervous and Mental Disease Monograph Series No. 40*.

it did, to explain, much more fully and in detail, both the mechanism and the content.¹²

If the explanations of the psychoanalysts of this group of cases were examined it would be found that they all make use of the well-known psychoanalytic mechanisms, particularly distortion mechanisms, as applied to material occupying the personal unconscious, that is, material that represents actual past experiences of the individual. Some tendency which may not have nucleated in an actual experience, or existed psychologically only as phantasy, is repressed. Where something occurs that threatens, through association, to make the repressed material or tendency conscious, anxiety occurs and attaches itself to whatever is present, to the stimulus that stirs the unconscious complex. Such symptoms as tachycardia, sweating, dyspnea, diarrhea, dry-mouth, nausea and vomiting, hyperchlorhydria, trembling, weakness, are all easily understandable in this setting as belonging to the general state of anxiety which accompanies the repressed material but is now reflected or projected upon the stimulus that threatens to make the repression ineffective. The key to the particular organic distribution of the anxiety will be found in the circumstances of the repressed experience: anosmia and disgust associated with bad odors; amblyopia or dimness of vision with terrible sights; deafness or an auditory aura when the repressed experience had a sound as an important part of it, like the report of a pistol, an explosion; anesthetics affecting erogenous zones, and so on indefinitely.

In addition to the above types of cases and explanations the psychoanalysts recognize that existing somatic disease which is not of psychogenic origin may be taken hold of, so to speak, and used by the neurosis. A neurotic with a feeling of inferiority, if required to submit to an amputation, would be quick to seize upon this mutilation to enhance and justify his feeling of inferiority; a beautiful girl with a tendency to regression would be pretty certain to have this tendency dangerously lighted up by an accident that disfigured her face—there would be no further reason for keeping up the fight; failure of all sorts, somatic as well as psychic and social, is seized upon to warrant further slumping and self-indulgence in the satisfactions of regressive tendencies.

All these concepts are exceedingly valuable and have proved very useful therapeutically, but to my mind they fall far short of plumbing

¹² Northridge, W. L. *Modern Theories of the Unconscious*. E. P. Dutton and Co., New York, 1924.

the depths of the subject. The explanations, inasmuch as they rest upon personal experiential material, are relatively superficial. They are based upon the concept of the unconscious as developed by Freud and which may be termed the personal unconscious, rarely upon the racial or collective unconscious of Jung. And, too, these explanations do not take into account sufficiently the organism-as-a-whole concept but tend, by implication, to preserve the dualistic conception of body and mind. I shall try to make my meaning, in respect to this last statement, somewhat clearer.

If we assume that "mental" is only another way of stating "total" reaction, and that therefore, inasmuch as there have always been total reactions, all the way up the evolution ladder, there must always have been what we know as psychological phenomena wherever there was life, then, as I have phrased it, the psyche is as old as the soma. If I use psyche in this broad sense then it can be seen that unconscious has a much more profound significance than the personal or even the racial unconscious, namely, that it consists of the total psyche as it has been preserved in the psychological structure of the individual from the very beginnings of life just as the anatomic structure likewise preserves the historical records of the total soma from the time life began. We must also assume that for every stage of development, not only personal, not only racial, but for every stage in biological development, just as certain motor responses were characteristic, so certain psychic responses or total reactions were also characteristic. In other words, that for each stage certain structures and functions were characteristic and as well psychological as physiological functions, and that structure and function, physiology and psychology, are interrelated, integrated, and interdependent. The organism has developed as a whole, all parts, structures, and functions advancing together or retarded together, but always related so that each is, of necessity, appropriate to the other.

The application of this more extensive concept of the unconscious as not only containing the records of the past for the years of the individual's life, but the records of the past of the millions of years of life as it has struggled forwards and upwards from its very beginnings until the present, has only recently been attempted. Groddeck discussed the psychoanalytic treatment of organic illnesses at the Sixth International Psycho-Analytical Congress at The Hague in 1920,

while in this country Jelliffe¹³ has for some years and most persistently attacked the problem, and he and I together, in our Textbook,¹⁴ have attempted to build up a consistent dynamic pathology of disease.

A generation ago only pathology was a study of the dead body; its concepts were formulated in the "dead house" and at the autopsy; it was structural only. Then slowly there crept into these static concepts the idea of function, and now pathology has cut loose pretty successfully from its exclusively structural moorings and realizes the importance of function. Now the next step will be to see the organs, not separately, as they are successively removed from the body at autopsy and carefully weighed, measured, and otherwise examined, nor even to understand them physiologically as the pathologist refers to the digest accompanying the case and to the results of the several functional tests conducted during life, but as they exist, not in themselves alone, but as integrated portions of the organism as a whole. We would introduce the psychic component into the study of disease, make pathology three dimensional, and extend our concept beyond the confines of the individual to include all life, for like the exponents of relativity we would include time as a fourth coördinate.

This introduction of what I have called the *time coördinate* into the field of medicine in general and of psychiatry in particular is illustrated in the known vulnerability of inferior organs, that is, of organs defective in development or relatively infantile in anatomic make-up as compared with the more usual, so-called normal, or adult type of organ, and the relative malignancy of tumors of embryonal tissue characteristics. It would seem here that the organs or tissues in question failed in not having come up to a standard that implied that they had acquired the maximum results of past experience as laid down in structure. An inquiry into the bearing of the time factor as thus displayed in structure and function relates these organs and their functions to more primitive types in the biological scale or evolutionary phylum, and is at the basis of the historical method and, too, of the comparative method of scientific inquiry.

¹³He has given a very excellent statement of the case in his most recent article. Jelliffe, S. E. The Neuropathology of Bone Disease. A Review of Neural Integration of Bone Structure and Function, and a Suggestion Concerning Psychogenic Factors Operative in Bone Pathology. Tran. Am. Neurol. Asso., 1923.

¹⁴Jelliffe and White. Diseases of the Nervous System. Ed. 1-4. Lea and Febiger, Philadelphia, 1915-1923.

If we will consider the individual in this way, as possessed of an unconscious that contains the psychic precipitate of millions of years of experience (mneme) as the body contains that experience laid down in structure, we will get a new and very stimulating and illuminating slant upon many problems that now are quite obscure.

Where will this way of thinking lead us? And to what purpose? Let us follow it sufficiently to see!

In the first place it is evident that the concept organism-as-a-whole cannot refer solely to the body but must include the mind. Mind and body are not separate and distinct, but only different aspects of the organism; nor are they related to a third reality like a man and his shadow; nor yet are they related by a constant process of give and take like the city and the river. The age-long distinction of mind and body has been built up largely as the result of metaphysical speculation until finally a pseudo-problem has been created which is difficult to deal with. My suggestion is that the most practical way to deal with this situation is to regard them as two aspects of the organism, like two faces of a crystal which may be considered separately or as related to the entire structure.

The meaning that immediately emerges from looking at mind and body as but two aspects of the organism is that *for every situation there is as well a psychic as a somatic aspect*, or, as there is no controversy about the latter, that every situation, for our purpose, *every disease, has a psychic component*, and further, that this component has a history as long and as important for its understanding as has the somatic component. It is only since the advent of the theory of evolution that the importance of the past for the understanding of the present has been appreciated. Heretofore, however, the importance of the past has only received a partial acknowledgment by somatic pathology. We are now beginning to learn that it has an equal importance for psychopathology.¹⁵ This concept in its length, breadth, and thickness, that is, in all that it implies, is really revolutionary and to my mind may easily be the most important thing to happen to medicine in many a day. It means no less than that, for an adequate understanding of any present situation the entire past, which necessarily includes the past of the psyche, must be understood. The present does not stand alone, it emerges from the past.

The working out of this idea is naturally very difficult and involves the understanding and unravelling of conditions that have become

¹⁵ See II. The Comparative Method in Psychiatry (Psychopathology). Jour. Nerv. and Ment. Dis., January, 1925.

extremely complex. The general formulation of the problem has been ably stated by Jelliffe,¹⁶ while its detailed application to several actual somatic disease conditions has been attempted by several. Mühl¹⁷ has attempted an analysis of the personality trends in pulmonary tuberculosis, Lewis¹⁸ has approached the problem by a study of the extraneural pathology of the psychoses, while the essay of Hollós and Ferenczi¹⁹ already referred to is a brilliant example of what can be done in this difficult and obscure territory that they aptly refer to as the stereochemistry of the psyche.

The lines of thought here suggested lead one as far as possible from the old idea that regarded the human organism as a closed system, self-determining, and morally responsible, all largely metaphysical concepts which grew out of contemplation rather than experience.

Before I pursue this thought any further I will be somewhat more specific in the matter of actual pathology, and in doing so I wish to call attention to an essay by Maeder²⁰ on psychopathology and general pathology, which, so far as I know, is the only previous attempt to deal with the subject I have undertaken in this paper.

Maeder cites the situation in which, in the midst of a mental conflict, a bodily disease—pulmonary tuberculosis—develops. It is assumed that what has happened is that the girl's reproaches of an unfaithful lover have, so to speak, turned inward and become destructive self-criticism, renunciation of life, self-hatred, and self-destruction, or what I call in such a situation an attenuated suicide. Now it would seem that here the psychic component is of greater importance than the somatic component, for the patient remains ill so long as the mental conflict endures, but gets well when and only when that clears up.

He makes a very important observation with reference to the type of individual who develops physical disease as a result of mental conflict. He says in the first place that the bridge between the

¹⁶ Jelliffe, S. E. *Paleopsychology. A Tentative Sketch of the Origin and Evolution of Symbolic Function.* The Psychoanalytic Review, April, 1923.

¹⁷ Mühl, A. M. *Fundamental Personality Trends in Tuberculous Women.* The Psychoanalytic Review, October, 1923.

¹⁸ Lewis, N. D. C. *A Discussion of the Relationship of the Chemical, Physical, and Psychologic Aspects of the Personality.* The Psychoanalytic Review, October, 1924.

¹⁹ Loc. cit.

²⁰ Maeder, A. *Psychopathologie und allgemeine Pathologie.* Zeitschr. für die ges. Neur. und Psychiat., Bleuler Festschrift, 1923, 82, 176, ably abstracted by M. R. Barkas in the Jour. of Ment. Sci., July, 1924.

mental and the physical is the affect, with which statement I should think there would be general agreement, and adds that it is the extravert, whose adaptation is mainly through feeling, who is particularly liable to discharge mental conflicts through physical pathways. He gives, as an example, gastric ulcer.^{20a}

Chronic disease mobilizes all the primitive and negating trends which have not found a proper place in the development of the character, and thus are organized a group of psychic factors which ally themselves with the bodily disease. He mentions, in addition to such as have been already suggested in the instance of the tuberculous girl, lack of faith in doctors and the prevalence of quackery.

He draws many analogies between mental and bodily mechanisms. In both, pathological processes may be predominantly degenerative or may be defensive and show attempts at healing. Melancholia he puts down as a manifestation of a destructive tendency. Repression is a defense reaction which, like immunity, is, within limits, a provisional method of safety. Indifference, defiance, negativism, may isolate a disease process by repression or projection like a diseased bodily area is encapsulated or amputated. In the concentration of forces on defense resistance or immunity results—mental alexins. Lysis is the process of dissolving the superseded organs or mental attitudes—mental lysis. Tissue overgrowth in granulations, lasting production of immunity, healing carried beyond mere defense to reconstruction occurs in the body; reintegration, healing and new development may also be manifested in the mind and personality.

Finally he believes that replacement, renewal, regeneration, products of the creative agent leading to growth and development, are limited in the body by material and structural boundaries but that in the psyche the scope is broader. Psychoneuroses and the functional psychoses are essentially due to deviations and inhibitions of development. Regeneration, restitution, and the continued integration of the personality are the essential elements of healing.

Apropos of this last point, namely, that the scope for development is greater in the psyche than in the body, I would call attention, in passing, to two important recent works that discuss this whole matter and strongly confirm Maeder in this opinion. The work of Child²¹ on the physiological foundations of behavior discusses at length the

^{20a} See also here Jelliffe and White (4th Edit.), p. 174, fig. 58 of Duodenal ulcer resulting from psychical conflict.

²¹ Child, C. M. *Physiological Foundations of Behavior*. Henry Holt & Co., New York, 1924.

problem, from a physiological standpoint, of the modifiability of pattern in general and of excito-motor behavior in relation to general organismic pattern. This discussion is based upon the results of his work of many years out of which has developed his theory of dynamic gradients as the basic factors in organismic pattern and the description of the organism as a behavioristic pattern in a protoplasm of specific hereditary constitution.²² The companion book, if it may be so called, by Herrick,²³ deals with the neurological foundations of animal behavior, that is, with the structural background of behavior. He also deals with the problem of modifiability, discussing the apparatus of modifiable behavior. His book is an examination of the dominant integrating tissue, the nervous system, and he shows how vital for the possibilities of the modification of behavior pattern was the advent, in the evolutionary phylum, of the synaptic type of nervous system.

With this interpolation of the confirmatory evidence of Child and Herrick, I will go on to state that which I had originally intended to, namely, that Maeder's statements might very easily be taken for a series of very pretty analogies and so his whole argument would be minimized to the point of extinction, except for the fact that so many apparent likenesses might readily be suspected of meaning a real likeness and, of course, the therapeutic results which are naturally exceedingly difficult to make convincing except by experience. It occurs to me, however, that the whole argument can be strengthened by a restating in somewhat different form, and it is this statement of the case, so to speak, that is the main object of the paper.

In order to make this statement as clear as possible, I will restate the general principles so far formulated. They are: *the necessity for considering the organism as a whole—the psyche is as old as the soma, and that for each situation there is as well a psychic as a somatic component.*

If we start from this synthetic standpoint rather than the analytic, which is the one generally in use by medicine, we come to an entirely different concept of the human individual, and it is my contention that one of the great values of this point of view is just because of this fact. Medicine has now been proceeding for some considerable time in the direction of increasing specialization, which means a fur-

²² See my *Significance for Psychotherapy of Child's Developmental Gradients and the Dynamic Differentiation of the Head Region*. The Psycho-analytic Review, Vol. V, No. 1, January, 1918.

²³ Herrick, C. J. *Neurological Foundations of Animal Behavior*. Henry Holt & Company, New York, 1924.

ther and further division of the individual into territories for special study and investigation. Whether this method has exhausted itself, whether it has reached its best results, and whether it may not be on the verge of becoming sterile for further advance, I do not know; but I do feel that the time is here for a new point of view, a new direction of medical thought, which will be rejuvenating in its effects, particularly in the consideration of the great silent areas of medical research. I am convinced that many problems that have long resisted the analytic method will show signs of capitulating in face of the synthetic.

The first thing this synthetic approach does for us is to recombine the organism, which had been split by the specialties, into a coherent, coördinated, integrated whole. In such a whole nothing can be trivial, nothing insignificant. When it is realized that most of the bodily organs represent the structuralization of millions of years of experience the respect for them and what they stand for in the organism as a whole will increase.

It is easy to understand how a considerable disturbance of one of the vital organs will seriously upset the whole individual but the ramifications of the functions of the organs of lesser importance are usually not seriously considered, as witness the nonchalance with which they are removed. An analogy may serve to bring this point home. What would happen, for example, in this automobile driving age, if some surgeon should cut rubber out of the social organism? We can, perhaps, form some idea of the amount of personal and social readjustment that would take place. Let us consider briefly somewhat more important or less well known organs. Take nitrogen. What would happen if nitrogen were removed? In the first place, war, as at present understood, would be impossible because all the high explosives depend, for their power, upon nitrogen. Just this alone gives a faint idea of the revolution in the social organism that would be necessary if nitrogen were removed, to say nothing of ramifications in the field of medicine and surgery and in the industries and its supreme importance in plant growth. When we come to a social organ like the coal industry the average person can only be appalled at the consequences of a failure of the coal supply, and yet the average person probably has little conception of coal other than as a source of heat. The enormous number of substances that are produced from coal, particularly the coal tar products, the oils, dyes, drugs, chemicals, find their way in every direction throughout the whole social fabric, and no man would be so rash as to even attempt

the prediction of what would happen as a result of a failure of the source of supply. Cottonseed is a similar, but less known, instance. Few realize the multiplicity of products, clothing, rope, writing paper, powder, varnishes, artificial silk, fuel, fertilizer, feed, oil, that comes from this source. The ramifications are of enormous complexity, but because unknown the social surgeon might undertake their removal with unpredictable and not understandable consequences. We have some historical evidence to indicate what might be the result of a serious attempt to destroy social institutions founded in ages of tradition, such as the Church, the Law. The result has been chaos, a breaking down and disintegration (dedifferentiation) of the social structure before a new structure could be built up (rejuvenation).

These illustrations give roughly the way in which a synthetic approach to the individual must, of necessity, lead us to think of him and of the relations his various parts—organs and functions—bear to the whole organism.

This analogy shows up very clearly one very serious type of error in medical thinking from which psychopathology, particularly, has long suffered. For instance, if something should happen to the automobile industry we would not look alone within the confines of this industry to find the effects. There are only comparatively a few people here who would be affected, but the whole social situation might easily be very much involved. In psychopathology we have insisted upon looking *only* in the brain for pathological changes. The rest of the body offers quite as promising a field.²⁴ In fact it is just these outside effects that interest us here, that is, the effects of the mind upon the body and the body upon the mind, to drop into the usual way of expression.

This usual method of expression, however, carries with it all the traditional errors of considering the body and the mind as two mutually exclusive systems. When the effect of one upon the other has been discussed it was from the standpoint of two systems and also from the standpoint of the etiological factor which was looked for in one of the systems. For example, a disturbed digestion produced a mental depression. The etiology was physical. A hysteria produced a paralysis. The etiology was psychic.

From the standpoint of this paper it must be evident thus far,

²⁴ See my *Outlines of Psychiatry*, Nerv. and Ment. Dis. Mon. Ser. No. 1, and Lewis, N. D. C., *The Constitutional Factors in Dementia Praecox*, Nerv. and Ment. Dis. Mon. Ser. No. 35, and Lewis, *A Discussion of the Relationship of the Clinical, Physical, and Psychologic Aspects of the Personality*, loc. cit.

and will be increasingly so as we proceed, that this is altogether too simple a way to look at the situation. The most that can be said is that of course the etiological factor, if it comes from outside—infection or source of anxiety—must enter, so to speak, at some point which may be either in the bodily or the psychic portion. However, even this is too simple a statement, as we shall see when I speak more specifically of the environment. From the standpoint of the symptoms it can only be said that they throw up more prominently, or at least are more obvious, for one reason or another, as psychic or as somatic. The whole organism is altogether too closely knit together, coördinated, and integrated to be usefully considered as composed of two systems reacting, throughout only a small portion of their extent, upon each other.

We can therefore only speak of disease which is predominantly somatic or psychic, for it is always both. Such distinction as may be drawn is only useful in a practical way. From a scientific viewpoint that would encompass the whole organism it is only misleading. Still language controls us and I shall consider the problem from these two angles, hoping that this explanation will serve to make the broader meaning clear.

In the first place, one aspect of the problem needs to be disposed of at once in order to clear the way. There is no doubt but a neurotic may utilize a physical disease or disability in the service of the neurosis. A physical handicap, for example, may make it impossible to take part in outdoor sports, and the inability is seized upon as a basis for decrying all athletics and exalting a sedentary life. This is a typical neurotic mechanism that destroys the individual's capacity for seeing the real situation eye to eye. This is perfectly understandable and, I take it, would not be argued. The real question at issue, however, is quite different. The question is whether a disease in either the psychic or somatic zone can be produced by etiological factors resident in the other zone, whether, in other words, bodily disorder may produce mental disease and mental disorder bodily disease.

The question put in this way can be answered affirmatively without much fear of successful contradiction. That serious bodily disease can produce a mental depression that may become pathological I think few would doubt. The obverse of this, namely, that serious mental disease, such as melancholia, may produce disturbances in bodily health, I think would also be generally accepted. Leaving out of consideration the question of whether physical disease may produce

other than contemporaneous functional disturbances in the mental sphere, the real issue for consideration here is, not whether mental disorder may produce physical disorder but whether mental disorder is capable of utilizing what we generally understand as organic mechanisms in the production of such disorder. In other words, the vital question is whether mental disorder is capable of producing organic disease.

This question, whether the psyche can make use of organic mechanisms, has received almost no attention in the literature. Groddeck, already referred to, has discussed it at some length,²⁵ as Jelliffe²⁶ has done before him, in this country. Groddeck cites an instance of pulmonary hemorrhage in which he was convinced that events connected with the incest complex determined the time, place, and duration. He explained psychogenically also an instance of retinal hemorrhage. He cites the case of a woman with maldevelopment of one breast. After a long period of psychoanalysis symmetry of development was attained. He also cites a patient with an enlarged eyeball, which symptom disappeared upon solution of the complex, reappeared and again disappeared under the same influences. Many other instances are also given which go to prove that organic symptoms may be used to protect repressed material.

Many other instances might be referred to but it seems that what is needed is a more satisfactory theory of how such things may be brought about rather than a multiplication of cases only vaguely understood. Jelliffe and I have endeavored to formulate a reasonably consistent dynamic pathology of disease²⁷ in our Textbook, in which we state that the psyche, as we know it as conscious awareness, is the end result in an orderly series of progressions in which the organism has used successively more and more complex tools (hormone,

²⁵ Groddeck, G. Über die psychoanalyse des Organischen im Menschen. Internat. Zeitschr. f. Psychoanalyse. Jg. 7, H. 3, 1921, and Psychische Bedingtheit und psychoanalytische Behandlung organischer Leiden.

²⁶ Jelliffe, S. E. Psoriasis as an Hysterical Conversion Symbolization, N. Y. Med. Jour., Dec. 2, 1916; The Vegetative Nervous System and Dementia Praecox, N. Y. Med. Jour., May 26, 1917; The Epileptic Attack in Dynamic Pathology, N. Y. Med. Jour., July 27, 1918; Psychotherapy and Tuberculosis, Am. J. Tuberculosis, Dec., 1919; The Psyche and the Vegetative Nervous System with Special Reference to Some Endocrinopathies, N. Y. Med. Jour., April 5, 1922; Multiple Sclerosis, the Vegetative Nervous System and Psychoanalytic Research, Am. J. Med. Sci., May, 1921, Trans. Am. Neurol. Assn., 1920; The Neuropathology of Bone Disease, A Review of Neural Integration of Bone Structure and Function, and a Suggestion Concerning Psychogenic Factors Operative in Bone Pathology, Trans. Am. Neurol. Assn., 1923.

²⁷ Jelliffe and White. Diseases of the Nervous System, Ed. 1-4. Lea and Febiger, Philadelphia, 1915-1923.

reflex, symbol) to deal with the problems of integration and adjustment. But by far the larger portion of the psyche is unconscious, and this unconscious lies much closer to the organic mechanisms than does consciousness, and the only way it can throw up in consciousness is symbolically, and the deeper the layer that thus gains expression in the thinking, feeling, and acting of the individual the more archaic the symbolization.

I may add, therefore, to the principles already formulated the further principle that *all total, that is, psychic reactions that have profoundly unconscious roots which are part and parcel of organic mechanisms throw up on the surface as archaic symbolizations.*

I have looked in vain for any satisfactory formulation of what is meant by an archaic symbol. I have attempted it quite inadequately elsewhere.²⁸ I think that the best that can be done is to think of the archaic as symbolizing psychic experiences that can never become conscious and the meanings of which can only be built up by the uncovering of like material, its comparison, and the use of the comparative method.²⁹ In this way its analogy with similar material in others, in the psychotic, in children, and in primitives, is brought out, and so the meaning will gradually emerge though it is always objective to the subject. However much the subject may take part in furnishing material for the explanation, he never feels what finally emerges as a personal possession. This means, of course, that the experiences come from very far back in the individual life—either in very early infancy (first six months), during intrauterine life, or as racial experience.

It would hardly seem necessary to proceed further along these lines to appreciate that I am aiming at a conception of the organism that regards it fundamentally as a going concern, not as an organic formulation that has come to rest, and further that I think of energy, not as of two kinds, bodily and psychical, but as of one kind. Body is one aspect of energy; it is what I have called energy laid down in structure or *structuralised function*. Mind is another aspect of energy. Here the process of thinking is function, and the content of thought is structure. What we are really dealing with, therefore, is the *distribution of energy* as psychic or somatic and its *differentiation* in these two spheres of activity. By differentiation here is meant its

²⁸ Foundations of Psychiatry.

²⁹ See II. The Comparative Method in Psychiatry (Psychopathology).

investiture of the several psychic and somatic structures.³⁰ *The final pattern of the psyche, then, at whatever level we cross-section it, is backgrounded by a specific pattern of somatic structure and energetic investiture.*

This last formulation looks as if I were fixing up a pretty rigid deterministic mould out of which no individual might hope to escape. Perhaps I am. I will not deny it, for discussion might lead into the bypaths of metaphysics. I will rather refer again to the evidence that man's high place in nature was assured by the introduction into the evolutionary phylum of certain possibilities for modification. Some of these are the synaptic type of nervous system, the cerebral hemispheres, and the symbol,³¹ to which must be added as the necessary result of these structures and their modifiable functions the capacity to profit by experience. We are not, therefore, dealing with a closed system, but a system into which modification may creep at any time. Pragmatically the important thing is to know where to attempt to enter with a therapeutic program, and how much can be hoped for.

Here I am tempted to point out certain analogies. Adler's inferior organ is the structural pattern. This backgrounds a general feeling of inferiority which is expressed at higher psychic levels by anxiety in the sense of Rank. In the organic zone there is a resulting direction of energy toward the inferior organ to make up for a deficient investiture, and so long as this organ can bear the load the balance is restored. Similarly anxiety at the psychic level prompts certain readjustments that restore the affect balance.³² *Now the affect is the bridge between the mental and the physical*, and the vegetative nervous system is the neurological machinery which, with the aid of the endocrine glands, translates the affect into appropriate physiological reactions. This, briefly, is the mechanism for readjustment, for a redistribution of the energy load.

³⁰ I speak of psychic structures and organs just as I speak of somatic structures and organs. This use I believe fully warranted by modern theories of energy and of the structure of matter. I think, too, that to think of an idea or a feeling as an organ as only vaguely perhaps analogous to a muscle or a ganglion in having a function to perform, in being constructed, so to speak, for the special purpose of doing a particular thing, to think of the unconscious as a vast and complex organ of the mind, like the cerebrum perhaps, helps one to think of the organism as a whole and of the play of energy throughout its many structural parts.

³¹ For the function of the symbol see my *Mechanisms of Character Formation*. The Macmillan Co., New York, 1920.

³² It may be that the increased investiture of the sick organ with energy (libido, interest) is an expression of an effort at healing.

Therapeutically, therefore, it can be seen that the whole organism must be taken into consideration, not only modifiability and readjustment in the abstract, but ability of the organs involved—psychic as well as somatic—to bear additional loads. Here the long experience of the internist with functional tests, rest, recreation, etc., should not be ignored but should be fitted into the scheme.³³

The whole problem of chronic disease, it would seem, might be illuminated from this standpoint. Here we may easily be dealing with mechanisms that put too much load upon certain organs. A shifting of the objectives of the individual in time might redistribute the load so that it would be much more comfortably borne, or actually diminish it materially. Take, for example, the problem of cancer, which for so long has resisted solution. Malignant neoplasms can be thought of as examples of groups of cells which either have accumulated sufficient energy to start an independent organization of their own or have escaped the dominance of the parent organism because of its failing strength—senility.³⁴ Many illuminating analogies might be drawn along these lines, as, for example, the analogy to anarchy in the social sphere, and the embryonal character of the malignant cells as comparable to the similar embryonal character of anarchistic groups resulting as they do from a breaking down (dedifferentiation) of the social structure. It is easily to be seen that the entire symptomatology of cancer does not refer only to the tumor mass but, as in the corresponding case of anarchy, resides also in the higher centers—evidences of loss of control, loss of dominance.

The burden of the argument thus far has been to combat the tendency to consider the psyche and the soma, as relating to each other, as closed systems, or the psyche itself as a closed system. The organism as a whole, however, might well be so considered so far as the evidence goes up to this point. That the organism is not a closed system I have elsewhere³⁵ attempted to demonstrate.³⁶ In

³³ The internist, however, has not begun to appreciate the psychic component in his various "cures." He has too long been content to dismiss anything psychic with the designation "suggestion" which, by the way, he understands hardly at all. One mysterious word is pronounced to dismiss another mysterious word.

³⁴ See Child. Loc. cit.

³⁵ See IV. Individuality and Introversion.

³⁶ As indicating how this point of view, that the organism is not a closed system, is coming to be received in other fields of inquiry, the example of Kappers' theory of "neurobiotaxis," as one of many instances, is peculiarly pertinent. Kappers developed this theory to account for the varying positions of the medullary nuclei in different animals. According to the theory the nerve cells shift in the direction of the stimulus. See Kappers, C. U. A., *Phenomena of Neurobiotaxis as Demonstrated by the Position of the Motor Nuclei of the Oblongata*. Jour. Nerv. and Ment. Dis., July, 1919.

my paper on Individuality and Introversion I maintained the thesis that *the usual distinction between individual and environment is largely artificial, that the concept "individual" as implying this distinction has had a distinct history, an evolution, and that the distinction which does arise in this way is broken down by introversion as is particularly well shown in the introversion type of psychosis, dementia precox. The individual and the environment are not mutually exclusive. They are the two elements of a dynamic relation, of a constant interplay of forces, in which their relative values are in a constant state of flux.*

Childs' theory, previously referred to, assumes that, as a result of the action of the environment upon a specific protoplasm, there is set up, within this protoplasm, a dynamic, metabolic, or physiological gradient or axis. From this chief, polar, or major axis minor axes are established, *i.e.*, symmetry. Remaining within the control of this dynamic gradient is all that constitutes the individual. Individual and environment are thus easily seen to be only terms depending, at any particular moment, upon the relative strength of the forces concerned.

This general statement, however, gives little idea of the multiple ways in which these two zones of energy activity, individual and environment, interpenetrate. I will call attention here to Henderson's book on the fitness of the environment.³⁷ In this book Henderson discusses the properties of water, carbon dioxide, the ocean, and the three chemical elements, carbon, hydrogen, and oxygen. As an example of the nature of this discussion I will give the list of properties of water considered. They are: *a*, specific heat; *b*, freezing point; *c*, latent heat of fusion; *d*, latent heat of vaporization; *e*, vapor tension; *f*, thermal conductivity; *g*, expansion before freezing; *h*, expansion in freezing; *i*, solvent power; *j*, dielectric constant; *k*, ionizing power; *l*, surface tension. He ends his chapter on water with the statement that "the following properties appear to be extraordinarily, often uniquely, suited to a mechanism which must be complex, durable, and dependent upon a constant metabolism: heat capacity, heat conductivity, expansion on cooling near the freezing point, density of ice, heat of fusion, heat of vaporization, vapor tension, freezing point, solvent power, dielectric constant and ionizing power, and surface tension." He concludes the chapter thus:

³⁷ Henderson, L. J. *The Fitness of the Environment: An Inquiry into the Biological Significance of the Properties of Matter.* The Macmillan Co., New York, 1913.

"In truth Darwinian fitness is a perfectly reciprocal relationship. In the world of modern science a fit organism inhabits a fit environment." In fact his conclusion amounts to this: That all of the properties of matter investigated, for all practical purposes, are of maximum significance for life. His final conclusions are these:

"I. The fitness of the environment is one part of a reciprocal relationship of which the fitness of the organism is the other. This relationship is completely and perfectly reciprocal; the one fitness is not less important than the other, nor less invariably a constituent of a particular case of biological fitness; it is not less frequently evident in the characteristics of water, carbonic acid, and the compounds of carbon, hydrogen, and oxygen than is fitness from adaptation in the characteristics of the organism.

"II. The fitness of the environment results from characteristics which constitute a series of maxima—unique or nearly unique properties of water, carbonic acid, the compounds of carbon, hydrogen, and oxygen and the ocean—so numerous, so varied, so nearly complete among all things which are concerned in the problem that together they form certainly the greatest possible fitness. No other environment consisting of primary constituents made up of other known elements, or lacking water and carbonic acid, could possess a like number of fit characteristics or such highly fit characteristics, or in any manner such great fitness to promote complexity, durability, and active metabolism in the organic mechanism which we call life.

"It must not be forgotten that the possibility of such conclusions depends upon the universal character of physics and chemistry. Out of the properties of universal matter and the characteristics of universal energy has arisen mechanism, as the expression of physico-chemical activity and the instrument of physico-chemical performance. Given matter, energy, and the resulting necessity that life shall be a mechanism, the conclusion follows that the atmosphere of solid bodies does actually provide the best of all environments for life."

The expression of Henderson's, already quoted, perhaps best formulates this whole situation, namely, "*A fit organism inhabits a fit environment.*"

We can only glimpse what this means when we begin to take into consideration the organic constituents of the environment for each individual, and for man especially, the social constituents. Among these organic constituents are the pathogenic microorganisms. If the principles thus far laid down are true, how do they come into the general scheme of things at the psychological level? I have already

considered the question of whether the psyche could utilize organic mechanisms. A strictly analogous question may be asked here. Can the organism utilize the environment to the extent of selecting a specific disease? Of course one can only speculate except that there are certain suggestions that lie along the way. Was it, for example, altogether an accident (if there is such a thing) that the girl Maeder reported developed a tubercular infection rather than some other kind? Certainly we know that a particular specific infection picks out different organs in different persons. Why does one patient develop a tuberculosis of the lungs, another of the spine, another of the hip, and still another of the skin, and so on? The best explanation that grows out of the present presentation is that, in face of a more or less universally distributed pathogenic organism like the tubercle bacillus, that organ becomes involved that is, for the time being at least, at a disadvantage either as to structure, energy investiture, or both.³⁸

In bringing this all too lengthy paper to a close I suffer from no delusion that I have done anything but think on paper, with so much coherence as I could command, about an extremely difficult, abstruse, and involved subject. But I may perhaps offer in extenuation the belief that, after all, it is by the exchange of thought that thought is fed and grows.

Medicine came into its present state still clinging to many prejudices of the past. Psychiatry, as being the last branch of medical practice to find itself, has naturally suffered most. I wonder whether it may not be a modern development of the medieval idea of devils as the cause of disease which still insists that the cause must always be outside; and whether the prevailing belief that the cause must be somatic may not too be a modern development of the medieval ambivalence toward the body that identified "sin" and "the flesh."

Psychoanalysis has at least emancipated us from thinking about the origin of disease as of necessity outside the body or as somatic and of considering its presence as due to sin. With medicine in general, however, it has borne the criticism of being materialistic in

³⁸ The whole problem of types which is so much in the air just now fails in two important particulars to envisage the problem in a way calculated to get worth-while results. In the first place it attempts to arrive at averages from material that is altogether too heterogeneous. For example, there is no reasonable excuse for lumping all precoxes together on the supposition that averaging up their characters will disclose something fundamental. See my review of Charles Goring's "The English Convict" in the *Jl. Amer. Inst. Crim. Law and Criminology*, September, 1914. Then again the relation of the environment is not considered in the sense of this paper.

its tendencies, largely, perhaps, because of its advocacy of psychic determinism.

In merging from the dark ages with their emphasis on the spiritual, science in general, and medical science in particular, was bound, by contrast if for no other reason, to be materialistic. The materialism of the last century, however, is very different from the materialism of to-day. Matter then was very simple, concrete, ponderable, tangible. To-day, with the evidences of the constitution of matter that make of the smallest particle known in the nineteenth century a veritable universe of revolving bodies separated by distances as great, relative to their various diameters, as the distances that separate the several bodies of our solar system, matter has become, if anything, more mysterious than the spirit of the Middle Ages is to us as we look back upon it. A materialism has grown up, if it is still proper to use that term, which no longer needs an idealism as counter tendency to counteract its crudities. For the scientist of to-day realizes that always there is a point beyond which his vision cannot peer but before he gets to that point the wonders and complexities of the universe as he knows them offer ample opportunities for the widest reaches of his imagination, for his creativeness and for the realization of all of his potentialities, and that it no longer is necessary to invent something beyond what we know in order to provide a sufficient stimulus to proceed. Idealism and materialism are coming nearer together, so even though they may still represent polar opposites in theory they are now capable of coming together much more nearly for the development of a practical program.

As science advances it constantly enlarges the field of the known but quite as constantly the new facts suggest new queries and the field of the unknown is contemporaneously and quite as much, if not more, enlarged. The unknown is now of such extent and of such quality that it should offer sufficient opportunity for speculation even to the mystically minded.

In offering the above I do so not with the slightest belief that I have succeeded in solving anything. There will always be a borderland between the known facts of science and the great unknown beyond that will forever prevent science from finishing its task and coming to be finally a closed system; and in this border territory, where clear formulations must give place to the uncertain, doubtful, and indistinct, science will always be vulnerable to the shafts of metaphysical trickery. I offer the above, therefore, only for such heuristic and pragmatic values as it may contain.

VIII

PSYCHOANALYTIC PARALLELS *

Since the beginnings of the psychoanalytic movement it has spread with amazing rapidity in all directions until the principles, which were originally worked out for the purpose of forming the basis of a therapeutic attack upon the neuroses, have been applied to practically every department of human thought. Like all new movements that require an entire recasting of one's methods of thinking it has excited widespread antagonism, particularly from those sources where it might be expected, from the old established authorities, men who have passed the formative period of their lives, and have become substantially established and identified with well-defined psychological attitudes. In addition to this class of opponents, who constitute the weight of authority, there are of course many with violent prejudices which have been easily stirred into action by the close contact into which they have been brought to the most rigidly tabooed of all subjects,—the sexual.

In reading the criticisms against psychoanalysis I have been struck by the lack of grasp of the subject which many of the critics have shown in their articles and the almost universal destructive, iconoclastic, not to say often vituperative character of their criticisms. While I realize with what poor grace the critics can be presumed to receive the counter-charge that they do not understand the things they are criticizing, still I am constrained to state my absolute belief in its literal truth. Many of the criticisms, and those too coming from sources from which one would have expected something better, show such an absolutely superficial knowledge of the whole situation that I have wondered where they have come across the matter which has excited their opposition, and whether, by any chance, the fault might not partly lie in the exponents of the method itself. One must conclude from such types of criticism that the movement has so aroused prejudices that a judicial and scientific approach to the problems involved has been effectually blocked.

* Read at a meeting of the Associated Physicians of Montclair and Vicinity, Montclair, New Jersey, November 23, 1914. The *Psychoanalytic Review*, Vol. II, No. 2, April, 1915.

It would seem that most critics conceive of the psychoanalytic movement as being right where it was several years ago; as not having made material advances or in any wise having broadened its concepts. This is due in part to the fact that psychoanalysts are mostly physicians, and their writings, at least those most apt to fall into the hands of other physicians who are the most active critics, appear mostly in medical journals and deal usually with concrete instances, with cases. The literature in English has been singularly barren, with the notable exception of the recent translation of Hitschmann,¹ of adequate efforts to group the phenomena and resume them under fundamental principles. In fact the time has not been ripe, until very recently, for any such effort: the principles had not been sufficiently worked out.

For some time I have felt that the most valuable service that could be rendered the psychoanalytic movement would be an effort to formulate the fundamental principles upon which it rests. Controversy, criticism, charge, and counter-charge while they may have a certain value, tend not to be constructive. Too much energy is wasted for too few results, while on the contrary I believe that a broadly conceived and constructive setting forth of fundamental principles which show the psychoanalytic method to be grounded in the very nature and necessities of human thinking would command for the new movement a respectful hearing.

While it is impossible to absolutely ignore the controversial side of the new psychology, I shall, in my paper this evening, acknowledge it only tacitly in approaching the matter I have chosen to present by availing myself of certain strategic advantages. I will take you at once into my confidence and tell you what I mean. The most violent prejudice has arisen in the past, not altogether, but largely, as a result of the report of cases. Now we who do psychoanalysis know that in reporting cases we are inviting a certain type of criticism that can not be answered. It is, I think, from a practical standpoint, absolutely impossible to report a case fully and justify all the positions taken, except the reader be sympathetic and has a considerable understanding of the principles. The main reason, although there are many for this, is the enormous amount of material that accumulates in the course of any one analysis. The result is that conclusions have to be indulged in to a large extent in the reports and this, it is easily seen,

¹ Hitschmann, Dr. Eduard. "Freud's Theories of the Neuroses" (translated by Dr. C. R. Payne), Nervous and Mental Disease Monograph Series, No. 17.

renders such reports especially vulnerable to the critics. Then again this material is peculiarly unavailable for verification or further study.

The method of presentation which I shall use, as has been my habit, is largely anthropological. I will undertake to show you certain deadly parallels between the psychoanalytic theories, the beliefs and practices of neurotics and children, and the beliefs and practices of primitive men. This material, unlike the patient of a particular physician, is available to all of you for your own investigations, and then, for reasons that are not necessary to mention here, the practices of savages do not arouse the antagonism, the disgust, or the prejudices when they are recounted as do the same practices of civilized, educated persons. I well remember, for example, with what disgust I heard of a medical student, who in an attack of petit mal while in the dissecting room seized and ate a piece of flesh from one of the cadavers, and yet I am not aware of any comparable feeling when confronted by the fact of cannibalism. The latter is too far removed both geographically and culturally to bring the facts really home to us. This illustration seems to me to show how much more effective, in many ways, the anthropological approach to these problems may be.

It is impossible in the limits of this paper to go into full explanations from all angles, but I must preface my illustrations by begging you not to forget that the mind of the child and of primitive man deals with much of experience in a very different way from the mind of the civilized, educated adult. It is necessary to stick to objective facts and not try to check up results by an appeal to one's own ways of thinking. The child and primitive man have no such intellectualistic language based upon clear cut concepts such as we have. They hardly think at all in the sense in which we ordinarily use that term—they feel rather.

Fiske² tells about a little four-year-old boy who thought the white clouds the robes of angels hung out to dry, while his little daughter wondered whether she would have to take a balloon to get to the place where God lives or whether she could go to the horizon and crawl up on the sky. From the beliefs of primitive peoples it is enough to mention that the sun has been believed to be an egg, an apple, a frog squatting on the waters, Ixion's wheel, the eye of Polyphemos or the stone of Sisyphos, which each day is pushed to

² Fiske, John. "Myths and Myth-Makers. Old Tales and Superstitions Interpreted by Comparative Mythology." Houghton Mifflin Company, Boston and New York.

the zenith and then rolls back again to the horizon; the storm cloud is believed to be a bird; the flash of lightning, a serpent, worm, lance, plant, pebble; the rain-clouds are celestial cattle milked by the wind-god, etc. Such beliefs are so far from our ways of thinking that it is inconceivable to us that they can be entertained. I ask you to bear in mind that the child and primitive man actually do hold such beliefs and that what we conclude about their ways of thinking must be posited of mentalities for whom such beliefs are not only possible, but usual, in fact they are types of the way in which the natural phenomena are perceived and understood.

With this introduction I will briefly sketch some of the psycho-analytic positions and the anthropological parallels.

The theories of the psychoneuroses trace back the origins of the conditions to early infancy, or to put the matter a little differently and more correctly, the psychoanalysts believe that the symptoms of the psychoneuroses were made possible by what occurred in the infancy of the patient. To put it still another way, the particular form which the symptoms assume finds its explanation when the psychological history of the patient is known. To understand any given symptom, therefore, it becomes necessary to trace its evolution back through the psychological history of the patient to its origin, which must lead ultimately to early infancy. Let me elaborate this point somewhat.

The interests and the affections of the young child are confined to very narrow limits. The child within the maternal body floats quietly and comfortably in a fluid of the same temperature as itself, it does not have to exert itself in any way, even to eat or to breathe—it is absolutely without desire because everything it could wish for is supplied before deprivation makes wishing possible; its state is one of unconditioned omnipotence.

Now this child, from this comfortable state of affairs, is thrust suddenly without warning and through no wish of its own into a cruel and uncompromising world of reality, which from the very instant of birth begins an insistent series of demands that will only end with death. The child at once must begin to breathe, a little later to take food and digest; almost immediately strange noises assail its ears, great areas of brightness and flashes of light disturb its repose and interfere with sleep, peculiar dark objects move about it, bend over it: it feels strange sensations of being raised up, and sees peculiar round patches, from which strange noises issue. The wonder and the

strangeness of this world, into which the child finds itself projected, is beyond our power of comprehension to even faintly imagine.

The first wish of the child is, therefore, for a return of the comfort from which it was so cruelly expelled—it wishes for the warmth and protection of the mother's body, it wants a return of its lost omnipotence. This is exactly what the nurse attempts to supply during the first few weeks. When the child is restless she wraps it up, snug and warm, and puts it to bed in a dark room, thus artificially reproducing the conditions within the mother's body.

A little later in the history of the child it finds out that within certain limits it can get what it wants by certain movements. It sees something, reaches out its hand, and if it is too far off the nurse stands ready to place it in its hand. Still later the same results are obtained by crying. These are respectively the periods of magic gestures and of magic words. The child seeks to restore its lost omnipotence in these ways, ways that become less and less efficient as the demands of reality become more and more insistent. We already see here, in the periods of magic gestures and magic words, the possible roots of hysteria, with its mechanism of conversion—the expression of mental symptoms in terms of physical disorder—and the compulsion neurosis with its complicated ceremonials.

During all this time a very important psychological process is going on—namely the separation of the individual from his environment, the building up of the ego-concept. The baby has to determine by a long series of experiments that the foot it sees lying out there in front of it is its own, that it belongs to its body and not to something else, and this sort of information has to be patiently gathered about each detail. Here we see that lack of clear differentiation between the individual and the environment that we see reproduced in dementia precox. For these patients the world is full of mystery, and all sorts of strange happenings have some occult meaning pointed at them.

During this period too the excretory functions must excite much interest and wonder. It would seem to me difficult to overestimate the effects that the initiation of these functions must have upon the child. They begin before the child has differentiated himself from the rest of the world, they take place without his volition, and they are accompanied by massive feelings of pleasure. It is not difficult to see in such experiences the roots of urinary and fecal phantasies.

Also during all this time and continuing to be of prime importance during the first four or five years of life there is taking place what

we term the family romance. The child's affections go out to the persons about it. These persons are very few and are characteristically the mother and father primarily, and then perhaps brothers and sisters, grandparents, and nurses, varying of course with circumstances. Now the original set of the child's love and the associations formed with its early manifestations may become of great importance in explaining later symptoms in case the individual develops a psycho-neurosis. The first experiences of love become a paradigm, the prototype for all those that come after. One of my patients dreamt that she found her little girl in bed in the room occupied by her grandfather. The grandfather was a surrogate for her father. She has a marked father complex, and the dream shows that she associates her father and her child, in other words her love for her child partakes of the same qualities as her love for her father, is thus seen to have incestuous characters and accounts for the great difficulties she has in dealing with her child in practical life.

This brings us to the problem of incest and to our anthropological material.

Incest has always been practiced to some extent. But while to-day the mere thought of such relations fills us with horror there is much evidence that it was not always so. In fact, under certain circumstances at least, incest was not only permitted, but was the accepted mode of procedure. In those tribes in which descent was along the female line a man was king only by virtue of the fact that he was the husband of the queen. When the queen died he would automatically have ceased to reign unless he married the heir to the throne, who in such a case was his own daughter, and that is exactly what he did. Public feeling must indeed have been very differently oriented towards incest in those days when kings set such an example, but we must not forget to-day that among the primitive people who live among us, the idiots, imbeciles, and feeble-minded, incest is often freely practiced.

That the problem of incest has always interested mankind, however, is shown by the fact that among the most primitive peoples known there already exist certain marriage taboos which when studied are easily shown to be directed against incest. In fact the whole complex social institution of totemism has as one of its main ends the solution of the incest problem. To put it in a half dozen words, totemism divides the tribes into separate and distinct so-called totem clans, and marriages are strictly prohibited between members of the same clan. According to the development of the totemistic scheme is

incest, as we understand the term, rendered more and more impossible. Not only primitive man has occupied himself with the problem of incest, but the literatures of all peoples are shot through and through with it. I need only mention the tragedy of Sophocles—*Oedipus-Rex*—the plays of *Hamlet* and *Electra* and the fairy tales of *Ingjibörg* and the beautiful *Sesselja* from the *Rittershaus* collection.

It is both interesting and instructive to learn that the incest taboos arose, in some instances at least, among people who had not yet discovered the relation between impregnation and sexual intercourse.³ Its roots in the child similarly antedate any such knowledge as we shall see in speaking of birth phantasies. How are we to explain it!

We have already seen how the infant, confronted by the insistent demands of reality, longs to return to its previous state of omnipotence as it existed in the maternal body. In other words how it seeks to withdraw from reality, to escape its demands. Now our horror of incest is our conscious expression of our desire to do that very sort of thing.

In the life history of every individual who grows to adulthood there comes a time when he must emancipate himself from the thralldom of the home. He must break away from his infantile moorings, go forth into the world of reality and win there a place for himself. Do not understand me to mean by this that he must simply physically leave the home, that is not at all necessary, but he must leave it in his feelings, he must put aside his childhood, put aside his infantile attachments and conquer his own world. While this is necessary it is extremely painful, and many persons never accomplish it. They are the future neurotics.

Incest, then, from this broad standpoint is really the attraction to the home that keeps us infantile, it represents the anchor that must be weighed if we are ever to fulfill the best that is in us. Incest, however, as it appears to us in our everyday thinking is clothed in the garments of adult sexuality and excites loathing, horror, disgust. Why? Because the path of escape from reality is broad and easy to find, it is the path downwards and backwards by which the individual tries to regain the protection of the parents and the home, and so something of his old omnipotence. It is a path open to all of us, and because it is so easy to take we must defend ourselves from it with the strongest of emotions. The horror we feel for incest in this sense

³ In a recent article Jones: *Mother-Right and the Sexual Ignorance of Savages*, *The International Journal of Psycho-Analysis*, Vol. VI, Pt. 2, April, 1925, argues strongly against this sexual ignorance of savages.

does not mean that we are so far removed from its possibility, it rather means that we sense it as a real present danger, and are obliged to bring up all our reserves to beat it back.

Each general has to take up the burden where the last one left it and go forward along uncharted courses into the great unknown. An incest complex is said to be at the bottom of every neurosis. When we look at the situation in this way is it not easy to see why?

Let us pass now to a consideration of birth and impregnation phantasies. It has seemed improbable, to many of you, no doubt, when a movement of the bowels was put down as a birth phantasy and eating was said to symbolize sexual intercourse.

Early in the life of the child, as in that of man, the origin of life, as represented by the advent of a new human being, is regarded with curiosity and wonder. We can easily understand this, for the more we learn about it the greater does the wonder become. The important point I wish to emphasize, however, is that in neither instance, that of the child or of primitive man, is there any relation known between sexual intercourse, pregnancy, and childbirth. Why this is so with the child we know, the reasons for this ignorance among primitive men are many. I will only mention one, namely, the long time that elapses between impregnation and the first signs of foetal life effectually prevents the relation of cause and effect from being established.

Now both children and savages know, in a vague way, that the child for a time resides in the body of the mother. How it gets there? where it comes from any way? is the subject of much theorizing.

The natives of Central Australia⁴ think that in a far distant past they call "Alcheringa" their ancestors, when they died, went into the ground at certain spots which are known by some natural feature such as a stone or tree. At such spots their ancestral spirits are ever waiting a favorable opportunity for reincarnation, and if a young girl or woman passes they pounce upon her, enter her, and so secure their chance of being born again into the world. In the Arunta and Kaitish⁵ tribes the totem of the child is determined by the place where the mother first "felt life," as the child is supposed to be the reincarnation of a spirit belonging to the totem occupying this locality. In the Central Australian tribes⁶ this theory, that the child is a reborn ancestor, a reincarnation of the dead, is universally held. The

⁴Frazer, J. G. "Totemism and Exogamy. A Treatise on Certain Early Forms of Superstition and Society," 4 vols. Macmillan & Co., London, 1910. Vol. I, p. 93.

⁵Frazer. "Totemism and Exogamy," Vol. I, p. 155.

⁶Frazer. "Totemism and Exogamy," Vol. I, p. 191.

Baganda believe⁷ that exceptionally a woman may be impregnated without commerce with the other sex, and so when a woman finds herself in this state and the usual explanation is not evident, she may claim that the pregnancy is due to the flower of a banana falling on her back or shoulders while she was at work, and this explanation is accepted. In the island of Mota in the Banks Group,⁸ if a woman happens to find, while seated in the bush, an animal or fruit of some sort in her loin-cloth she carefully takes it home, and if an animal, makes a place for it, tends and feeds it. After a while if the animal disappears it is because it has entered into the woman. When the child is born it is regarded as being in some way the animal or fruit and may never eat this animal or fruit in its lifetime on pain of serious illness or death. Here we are quite close to the primitive idea of a soul which you know is conceived of as a living being that can leave the body and return to it. We see this analogy more clearly among the Melanesians.⁹ A pregnant woman fancies that a cocoa-nut or bread fruit has some kind of connection with her child. When the child is born it is the *numu* of the cocoa-nut or what not, and as in the previous instance the fruit is taboo for the child. It is instructive to learn that the words *atai* and *tamaniu* used on the island of Mota¹⁰ to express this relationship are accepted equivalents for the English word "soul." And finally we get the extreme of concreteness in the Tlinglit tribe¹¹ of northwest America. When a beloved person dies the relatives take the nail from the little finger of his right hand and a lock of hair from the right side of his head and put them in the belt of a young girl. The young woman then fasts a prescribed time, and prays just before she breaks her fast that the dead person may be born again from her.

These examples show the extremely material and concrete character of the savage concepts still further emphasized by the widely prevalent belief that at the moment of "quickenings" some animal has entered the woman's womb.¹² It is quite evident to her that something has entered her, and what more natural than to suppose it to be the spirit of the animal, bird, or plant that she was looking at or near when she first felt the movements of the child. This belief, coupled with the belief of the Minnetarees¹³ or Hidatas of the Siouan

⁷ Frazer. "Totemism and Exogamy," Vol. II, p. 507.

⁸ Frazer. "Totemism and Exogamy," Vol. II, p. 90.

⁹ Frazer. "Totemism and Exogamy," Vol. II, p. 84.

¹⁰ Frazer. "Totemism and Exogamy," Vol. II, p. 81.

¹¹ Frazer. "Totemism and Exogamy," Vol. III, p. 274.

¹² Frazer. "Totemism and Exogamy," Vol. I, p. 157 sqq.

¹³ Frazer. "Totemism and Exogamy," Vol. III, p. 150.

or Dacotan stock, that there is a great cave the Makadistati or "House of Infants" which contains spirit children waiting to be born, and it is these children who enter women and are born of them, I need hardly remind you of Maeterlinck's "Blue Bird," is near enough to the common ideas of children that you all know, that babies are brought by the stork or the doctor, to need no further comment on that score.

In introducing this subject of the theories of impregnation I said that the psychoanalyst had found that often eating together was symbolic of sexual intercourse and promised some anthropological verification of that statement. When a man of the Wogait tribe of Northern Australia¹⁴ kills game or gathers vegetables while hunting he gives of this food to his wife who is obliged to eat believing that the food will cause her to conceive and bring forth a child, while among the tribes around the Cairns district in North Queensland¹⁵ the acceptance of food by a woman from a man constitutes a marriage ceremony as well as being the cause of conception.

We have seen that when a woman "quicken" she thought the spirit of the animal or plant that happened to be near had entered her womb, so we see now that it is quite as possible to attribute the child to food that enters the body by the mouth. Here is an extremely interesting relation between the sexual and the nutritive and is a deadly parallel to the child's belief that it is what its mother has eaten that makes the baby grow in her.

If it is the food that makes the child grow in the mother's body it is only a step to the conclusion that the exit of the baby therefrom shall be via the alimentary canal. This cloacal theory of birth is one of the commonest formulations of the child mind and is of course the basis of the birth phantasies I have already mentioned as being associated with movements of the bowels. Have we any corroborative evidence that similar ideas were held during the childhood of the race?

The Pennefather blacks of northeast Australia¹⁶ believe in a being they call Anjea, who was originally made by Thunder, and who fashions babies of swamp-mud and inserts them in the wombs of women. I need hardly point the analogy of swamp-mud to feces.

It is a far cry from this crude concept of savage man to the beautiful Greek myth that tells how Prometheus (Forethought) and Epimetheus (Afterthought) made man from clay and then how Eros

¹⁴ Frazer. "Totemism and Exogamy," Vol. I, p. 576.

¹⁵ Frazer. "Totemism and Exogamy," Vol. I, p. 577.

¹⁶ Frazer. "Totemism and Exogamy," Vol. I, p. 536.

breathed into his nostrils the spirit of life and Minerva endowed him with a soul, but the distance has been spanned by comparative mythology with the assistance of the psychoanalytic interpretations.

From these illustrations that I have given of the theories that have been utilized to answer the childish query, where do babies come from? is it not understandable why our neurotics should go back to that way of thinking?

The most important biological function of life is reproduction. Unless it were so the race would perish. I need not detail the elaborate precautions that Nature takes to insure the completion of this function. I need only say that she insistently demands it of each individual. And so when, for any reason, a young woman, for example, has been thwarted in her love story she can bring about the required result in her world of phantasy where the result is attained in her thoughts. This is the explanation for all that group of "spurious pregnancies" we see in the hysterics. They bring things to pass by just thinking them, but they have to use infantile ways of thinking because only in that way can they make them come true. It is an example of the "all-powerfulness of thought" and is another illustration of the unconscious desire to return to that period of omnipotence that was first rudely shattered at the moment of birth.

We see in these illustrations also something further that serves to hitch up primitive ways of thinking with neurotic symptoms.

You recall the example of the method of securing the rebirth of a beloved friend who has died. The nail of one finger and a lock of hair are placed in the belt of a young woman and are so thought to impregnate her with the spirit of the deceased. This custom is related to a widespread belief that anything that ever belonged to a man somehow always remains in magical sympathy with him. It is the principle of contagious magic¹⁷ and is at the basis of sorcery. In Ancient Egypt, for example, if a sorcerer could secure a drop of a man's blood, some of his hair, some parings of his nails, or a rag from his clothes he was assured of complete control over him. These things he kneaded with wax into an effigy of his victim who was then at the complete mercy of the sorcerer. If for instance the wax doll were exposed to the fire the person it represented would at once fall ill with fever, etc. To prevent such untoward effects the Papuans of

¹⁷ Frazer, J. G. "The Golden Bough, A Study in Magic and Religion." Part I, The Magic Art and the Evolution of Kings. 2 vols. 3d ed. Macmillan and Co., London, 1911. Vol. I, p. 175.

Tumleo,¹⁸ an island off German New Guinea, take great pains to throw into the sea the bloody bandages from their wounds lest they fall into the hands of an enemy. They will even stop in their journey through the forests to search for the least scrap of a garment that might have been lost and even to scrape carefully from a bough any little bit of red pomade that might have adhered to it from their greasy heads. The extent to which this type of belief goes is well illustrated by the belief in New Britain¹⁹ that the sickness and death of a man may be caused by pricking his footprints with the sting of a sting-ray and the similar belief of the Galelarsee²⁰ that if a man's footprint is pierced with something sharp it will wound his foot.

In the face of such facts as these remember what I have said earlier in this paper about the interest the infant takes in his excretions, then is it not possible to tie all these facts together, to at once see meaning in the scatological rites of savages, about which volumes have been written, and at the same time to see possible meanings in the similar practices of our seriously introverted types of mental disease. If these relations are plain to you the object of my paper has been attained, viz., to read meaning into the ideas and practices of the mentally ill and so disarm that disgust which so frequently effectually blocks all efforts at understanding.

We have seen that the emancipation of the child from the home finally becomes necessary as a step in the direction of that autonomy which alone will enable him to reach his fullest personal development. That such attachment is necessary while he is in a stage of development that makes him dependent upon his parents is evident, and it is also evident that the detaching process cannot be other than painful. I have briefly indicated how the horror of incest was a constructive attitude of mind which helped to force upon the individual this separation by erecting an incest barrier between him and those upon whom, as a child, he had been dependent.

Now in this matter of the interest of the infant in his own excretions we see a similar mechanism at work. It is necessary that the child should be preponderantly interested in his own body during that stage in his development when he is building up his ego-concept. It is of supreme importance that he should learn to differentiate between that which is "I" and that which is "not I." This differentiation, as I have also indicated, is only possible by an extensive series of

¹⁸ Frazer. "The Magic Art," Vol. I, p. 205.

¹⁹ Frazer. "The Magic Art," Vol. I, p. 208.

²⁰ Frazer. "The Magic Art," Vol. I, p. 208.

experiments and observations in which a supreme interest in his own sensations and feelings plays a principal part. This process is likewise rendered more certain of attaining its goal by the constructive utilization of feelings of disgust which have as their functions the erection of an autoerotic barrier. In other words he must finally discard this intensive self-interest. As the thralldom of the home must be put aside, so also must selfishness.

In these conclusions I have arrived at the final synthesis of this communication—the analogy between primitive man and the child on the one hand, and on the other between them and the neurotic. The whole situation is thus seen in its broadly genetic aspects—the psycho-neuroses are essentially disturbances in the process of development at the psychological level. It has been well said, and very well expresses this conception of the neurotic “Hell itself is right—the tragedy is to remain.”²¹

The psychoanalytic movement in mental medicine seems to me to parallel the pragmatic movement in philosophy. Both have excited the unequivocal antagonism of the “old guard,” but both aim at essentially the same thing—to elaborate methods of dealing with the actual facts of experience in a way that shall be helpful to us both in enabling us the better to find our way among these facts and in assisting us to formulate practical lines of conduct toward them. If you will orient yourselves sympathetically toward this movement I am sure you will find it useful. If you cannot agree with its principles I at least bespeak for it a judicial consideration of its claims.

²¹ Comfort, W. L. “The World-Man.” *The Forum*, February, 1914.

IX

PRIMITIVE MENTALITY *

(A Book Review)

Psychoanalytic literature has abundantly emphasized the part played by phantasy in the neuroses and the psychoses and I have taken occasion to emphasize that phantasying is a way of thinking quite different from our usual way, in fact that we think in two quite different ways:¹ first, the usual way with which we are quite familiar. In this method of thinking there is clear consciousness in the sense that the person is definitely oriented toward reality and the thinking is carried on with the exercise of critique and under the control of the processes we term intellectual. Such clear, conscious, intelligent thinking has its motivating incentives in reality. Second, the other kind of thinking which is very different and which takes place without conscious direction or critique, the thinking in which ideas follow one another without selection, coming and going without apparent reason and not corresponding with any relation between the individual and reality. This is the kind of thinking that takes place during dreaming, either in sleep or in day dreaming, at times of mental abstraction, and the thoughts that come at such times are not controlled by intellectual critique but by feeling, in fact they are not thoughts in the usual sense, we call them phantasies and the process phantasying.

Another property of this phantasying is that it is less developed, more primitive and infantile in character than intellectual thinking and because of this fact and the further fact that it is characteristic of the neuroses and psychoses I undertook in my paper "Psychoanalytic Parallels"² to draw certain parallels between it and the thinking of children and of primitive man.

A still further implication of these facts is that if one method of

* Primitive Mentality, by Professor Lévy-Bruhl. Published by the Macmillan Company, New York, 1923. The Psychoanalytic Review, Vol. XI, No. 1, January, 1924.

¹ Dreams: Reference Handbook of the Medical Sciences.

² The Psychoanalytic Review, Vol. II, No. 2, April, 1915. See VIII.

thinking is relatively primitive and the other relatively developed then there must be indications that not only are children and primitive men relatively undeveloped in their way of thinking but that there must be a development from their primitive ways of thinking to the more elaborate and controlled ways and this I attempted to show in my paper "Individuality and Introversion,"³ in which I developed the thesis that the usual distinction between individual and environment is largely artificial and that the concept "individual" as implying this distinction has had a distinct history, an evolution, a point which has been brilliantly elaborated by Freud in his recent "Group Psychology and the Analysis of the Ego," and the further implication that the distinction which has grown up between individual and environment is broken down by introversion, as is particularly well shown in the introversion type of psychosis, dementia precox. I concluded that the individual and the environment constitute the two elements of a dynamic relation, of a constant interplay of forces, in which their relative values are in a constant state of flux.

A still further implication of all this is that we cannot understand the thought of the neurotic and the psychotic, of the child and primitive man, if we undertake to judge them from our own standards, a point of view which has been very elaborately set forth by Jung in his recent work, "Psychological Types," who emphasized the inability of certain opposite types to comprehend each other. The thought of one is incommensurable in terms of the thought process of the other.

Now there comes into this situation Professor Lévy-Bruhl, who in a work of really great importance, "Primitive Mentality," throws additional light upon this intricate problem from the point of view of a study of the mind of primitive man. We have been accustomed to the study of primitive man's thinking processes, especially as set forth in Frazer's "Golden Bough,"⁴ through an attempt to understand his customs, but Lévy-Bruhl here and in his previous work, "Les Fonctions Mentales dans les Sociétés Inferieures," undertakes directly the study of the processes of thought as they occur in primitive man, as Freud did in his "Totem and Taboo."⁵ The results he has arrived at by this method are both interesting and important and worth such brief comment as may be made upon them in such

³ See IV. Individuality and Introversion.

⁴ Reviewed in The Psychoanalytic Review, Vol. III, No. 1, January, 1916.

⁵ See also Jung's "Psychology of the Unconscious" and G. Róheim: "Ethnology and Folk-Psychology." Internat. Jour. Psycho-Analysis, Vol. III, Pt. 2, June, 1922.

a review as this plus the suggestion that the book as a whole is well worth careful perusal by all who are psychiatrically or psycho-analytically inclined.

In his previous work the author laid particular stress upon the "law of participation" considered in relation to the "principle of identity," and upon the fact that primitive man pays but slight heed to the "law of contradiction." The present book undertakes more particularly to show the meaning of "causation" to the primitive mind.

In order to follow the author as he unfolds his argument it is necessary to understand certain fundamental positions which he particularly developed in his earlier work. The primitive stands in a peculiar relation to his world of reality quite different from the relation as we are accustomed to think of it. The individual, as we think of him, does not exist. As expressed by one investigator of the Bantus: "In the Bantu conception of the cosmos, the individual does not exist; organized collectivity on the other hand is, properly speaking, the only *being* which has a real existence. This is actual, the former accidental; this persists, while the other is transient."

It is because of this lack of individuality, this fact of collectivity, that primitive man as a member of his group thinks and feels as all the other members think and feel, in other words the various individuals think and feel alike, hold common views, beliefs, fears, faiths. These states of mind which are held in common the author calls "collective representations," fully understanding, however, that they "differ profoundly from our ideas or concepts; nor are they the equivalent of them," and further "not being purely representations, in the strict sense of the term, they express, or rather they imply, not only that the primitive actually has an image of the object and believes it is real, but also that he hopes or fears something from it; that some definite action emanates from it or is exercised upon it. This action is an influence, a virtue, an occult power, varying according to its objects and circumstances, but always real to the primitive, and forming an integral part of his representation. If I were to express in one word this general property of the collective representations holding so important a place in the mental activity of undeveloped peoples, I should say that their mental activity was a *mystic* one. I shall use this term in default of a better, not referring thereby to the religious mysticism of our communities, which is something quite different, but employing it in the strictly definite sense in

which "mystic" implies belief in forces and influences and actions which, though imperceptible to sense, are nevertheless real.

"In other words, the reality in which primitives live is itself mystical. Not a single being or object or natural phenomenon in their collective representations is what it appears to be to our minds. Almost everything we perceive in it escapes their attention or is a matter of indifference to them. On the other hand, they see many things of which we are unconscious."

Primitive man, then, not individually, but collectively lives in this world of reality which "only partially coincides with our own" and which possesses an infinity of mystic attributes. As he is not clearly differentiated from his fellows so he is not clearly differentiated from his environment, he is a part of it and it a part of him, he participates in it and the participation is of a mystical character. This is what the author means by "mystic participation." This mystic participation of the individual, possible only because of the lack of differentiation of individual from environment, is of the nature of an interplay of forces whereby the individual projects his qualities upon the environment and introjects the qualities of the environment after the manner described by Ferenczi in his paper, "Introjection and Transference."

A good example of the way the "law of participation" works is the following: "When a Ronga comes back from Kimberley, having found a wife there, both bring with them a little of the earth of the place they are leaving, and the woman must eat a little of it every day in her porridge, in order to accustom herself to her new abode. This earth provides the transition between the two domiciles." Another example of the law of participation is shown in the custom that makes the sowing of the fields a duty of the women. It is "because women are able to bring forth, and are able to command the seed they sow to be productive." Here we have also an illustration of the "principle of identity" and the way in which "causation" appears in the primitive mind.

The particular feature of the book, however, which is of especial interest is the confirmation it affords to several of the tenets of psychoanalysis by examples from the mental operation of primitive man. I will illustrate and discuss several.

IDENTIFICATION

One of the corollaries of the imperfect development of the concept "individual," of the failure to differentiate himself from his environ-

ment, including his fellows, is shown by the ease with which primitive man can identify himself with others. It is the custom in many places, when a man dies and it is suspected that he has fallen a victim to witchcraft, to question the dead man himself in their effort to discover the guilty person. In Tagoland when this method is carried out, "Those who put the questions take a rod about five feet in length and stand on one side. One of them then goes down on his knees, and the rod is placed on his head, one end in front and the other behind. Then he rises, and from this moment he is no longer an ordinary man; he has, according to them, *become the dead man himself*.⁶ One of the older men among the questioners then makes the necessary inquiries of the dead man, who gives an affirmative reply by raising his head and shoulders, and a negative one by inclining backwards."

Another most significant example is taken from a practice of divination that prevails in New Guinea and which "consists in observing on which side the water begins to boil in a vessel containing certain magic herbs. It is not enough to say that the right side of the vessel 'represents' the enemy, and the left the natives who are making the test. In a way which cannot be made objective to the understanding, nor expressed in language, but which is none the less real, the Papuans identify themselves and identify the enemy, with the respective sides. This side, says the missionary, 'belongs' to them; that is to say, it is theirs, just as their hands, limbs, head, and name are theirs, and 'belong' to them. It is not simply theirs, *it is they themselves*. Whilst the test is being accomplished and they are following its progress with eager eyes, in passionate and often anguished ardor, they feel themselves to be personally engaged. It is something quite different from a symbolic representation, showing beforehand what is about to happen. *It is the warriors themselves in the presence of their enemies. They are actual witnesses of their own victory or defeat.*"

TIME

It is a commonplace in psychoanalysis that in the unconscious there is no regard for the factor of time. We find a similar state of affairs in the thinking processes of primitive man. This is already well illustrated by the last example upon which and similar examples the author comments by saying, "From these ideas, which are flet

⁶ Italics in this and subsequent quotations not in the original.

with almost everywhere, it follows that a war that has been well prepared is virtually won."

The following comments of the author on similar practices of magic before fighting very well express the situation:

"Here we recognize the disposition of the primitive mind to regard, as actual and already accomplished, a future event which, for mystic reasons, seems to be certain. Since magic operations which are infallible have been performed, *the enemy chief is conquered at this very moment, his cattle are already captured. Victory has not only been prepared and prefigured, it has literally been gained.* The fortune of war is not decided on the battlefield where the armies encounter each other; the decision has already been arrived at in the realm of the invisible."

Referring to the previous example of divination by the boiling of water the author says: ". . . as soon as the primitives form an idea of any action of the mystic powers, it is, in their eyes, from that very moment a real thing, even if it is not to manifest itself until later. *Occurrences may therefore be both future and present at the same time.* This simultaneity is not formulated in exact terms in the mind of the primitive; it is simply felt. When the native who is noting, with an emotion which almost amounts to paroxysm, the movements of the boiling water, sees it overflowing on his side, he is *at the same time* present at his own victory. From this moment it is a reality to him, although it cannot take place until he has encountered the enemy. He is not only sure of conquering; he has, indeed, *already conquered.*"

Further, in speaking of such tests by divination, the author says, "the successful issue of the test not only informs them that they may now proceed to action (just as the weathercock's new position announces that the wind has changed, and it is now safe to put out to sea). It certainly does that, but at the same time it does a good deal more: *it promises a success which is already a reality.*"

THE UNCONSCIOUS

There is evidence in the beliefs and practices of primitive man that he takes into account the unconscious, not only the unconscious in the sense of the common features of the racial mind, the "collective representations," or the "collective unconscious" in the sense of Jung, but also in the psychoanalytic sense as having the meaning of "repressed." It is, of course, too much to say that the savage con-

sciously recognizes the existence of repressed motives but he does act as if he did, as illustrated in the following example:

"According to our view of the matter, if it appears that a man has infringed some rule without knowing it, and above all without any means of knowing it, his unavoidable ignorance is nearly always accepted as an excuse. The rule has not been broken in reality, because it did not rest with the man whether it should be observed or not. The attitude taken by primitive mentality with regard to this same fact is widely different. First of all, infringement of the rule brings about the consequences independently of the doer's intentions, and, as it were, automatically. The rain can no longer fall, a tempest rages, the game disappears, not because a woman who was enceinte desired to be rid of her offspring, but because she did not observe the necessary rites when the miscarriage had taken place. *It matters little whether her action was intentional or not.* If the miscarriage were accidental, matters would have turned out just the same. But there is more in it than that. *The absence of intention*, in anyone who has been guilty of infringing a regulation, *rather aggravates than excuses the fault.* As a matter of fact, nothing happens by chance. *How, then, can a man have been induced to commit a crime without wishing to do so, or knowing that he was doing it?* He must already be the victim of an occult power, or the object of anger which must be appeased—at least (and this is a still more serious supposition), *unless he has within himself, unknown to him, some power for evil.* Instead, therefore, of feeling reassured by the fact that he could not know his wrongdoing when committing it, and that it was consequently inevitable, his anxiety is all the greater. It becomes henceforth indispensable to find out (by divination, as a rule), how it happens that he has been placed in so parlous a state."

Just as the unconscious is timeless so it is illogical or prelogical, as the author prefers to designate the thinking of primitive man. He says "most of the collective representations which engage its attention are of a markedly emotional character, and the preconnections established between them are often prelogical in their nature and impervious to experience." An interesting and instructive example which shows the analogy of primitive ways of thinking to the ways of the unconscious is that of the Indian who attempted to assassinate Mr. Grubb. It seems that the Indian had dreamt that he had met Mr. Grubb in the forest and been accused of misappropriating his property and been shot by him; he then attempted the assassination. The author comments as follows: "Does he regard the

event he has seen in his dream as past or future? Evidently he considers it a future occurrence, since he has not yet sustained Grubb's shot and been wounded by him. But it has happened nevertheless, and therefore his reprisals are justified."

THE WISH

There are many interesting and striking examples of the part the wish plays in the primitive mentality. I will cite only a few briefly. Some sixty wives of a prince who had died voluntarily drank poison "from a belief that they had wished their husband's death." Thirty-one of these unfortunate women succumbed, the others, who vomited immediately, lived. In Calabon a woman was rescued who had been chained to a log of wood and placed by the water side to await high water when she would be swept into the sea and devoured by the sharks. "I found that she was one of the wives of a chief who had died a few days before, and the brother had selected her to suffer for having wished his deceased brother's death!" The author comments very illuminatingly on these customs:

"These facts would be incomprehensible if we were ignorant of the collective representations which cause primitives to act thus. In the first place, *the desire in question is not necessarily a conscious wish, definitely formulated*. In a moment of anger and impatience when tortured by jealousy, the wife may have wished that her husband were dead, *without even owning the wish to herself*, or taking it into account." And finally, "according to the Iroquois, every illness is a desire of the soul, and people only die when their desire is not fulfilled."

ALL-POWERFULNESS OF THOUGHT

The all-powerfulness of thought especially as expressed by the wish is also numerously illustrated. Preuss is cited in the following comment: "*They attribute quite extraordinary power to words and thoughts.* . . . Everything that is done is referred not merely to external activity, but considered as the result of reflection also. The very fact of the action is quite insignificant in comparison, and in a sense it is not differentiated from reflection. . . . Words are not regarded merely as a means of expression, but as a method of influencing the gods, *i.e.*, Nature, just like entreaties and music. . . . What the words mean is already realized from the mere fact of their being uttered, supposing, of course, that the necessary magic force resides in the person speaking. . . . In various ways we may see that when man acts, *thoughts take first rank as a means of action*,

and that they can even produce their effect independent of the words or the material act." Rivers is quoted as saying that he "was told by two men that they believed that a sorcerer, by merely thinking of the effect he wished to produce, could produce the effect, and that it was not necessary for him to use any magical formula or practice any special rites." A very instructive example is the practice in South Africa, India, and elsewhere, of forbidding anyone to work in the fields when rain begins to fall after a prolonged drought. "As a matter of fact, the man or woman who wanted to work out of doors could not help wishing the rain to stop, and that desire would influence it." An illuminating instance of how wishes may be made to bring results is "in the Ten'a version of the Flood, where, to cause the reappearance of the land, the raven wishes with such energy that he faints from the effort."

SUSPICION OF NEAR RELATIVES

We know how the family romance insures a special libidinal cathexis of the nearest relatives and associates and we have learned that many of the manifestations directed towards these near relatives can be explained by the ambivalence of the libidinal charge. We find illustrations of this mechanism in the suspicions that primitives direct against near relatives under certain circumstances. The author recites the case of a mother being condemned to the ordeal for having caused the death of her son by witchcraft and says, "In these communities suspicions are often cast first of all upon the immediate circle or the nearest relatives of the person bewitched." And, further, "Who benefits by the death of a father or a brother? Why, the son or another brother. Consequently when a father is ill, the son is regarded with suspicion, . . ."

A great many additional interesting and instructive examples might be cited to show how impossible it is to judge primitive ways of thinking by the standards to which we are accustomed. Primitive mentality "is but slightly conceptual," is "indifferent to the law of contradiction," and is of "mystical and prelogical character." The author comments on this aspect of the matter thus: "If we start from the hypothesis that these primitives reason as we do, represent to themselves as we do, the connection between cause and effect. I venture to say that we must at once give up the hope of understanding them. What they think and what they do, in that case, can but appear absurd and childish in our eyes. But if, instead of attributing to them our own habits of mind, we try to adapt ourselves to their—"

mental attitude, indifferent as this is to the most obvious causal relation, and solely occupied with mystic and unseen forces, we shall find that their way of thinking and acting is the natural and even necessary outcome of this."

The great value of such a work as this to psychiatry and to psychoanalysis is not only its helpfulness in understanding the several mental mechanisms involved which results from seeing them at work in different settings; not only the grasp which it gives to our conception of the history of the psyche, and the confirmation of many clinical experiences; but perhaps more important than any of these reasons from a practical point of view is the assistance it gives in an understanding of many ways of thinking and feeling the history of which is unclear or relatively inaccessible from patient material alone. This is particularly true of all such ways of thinking and feeling that contain archaic components such as the concepts "mascot" and "Jonahs."⁷

A great deal more might be said about this valuable book but enough has been written to indicate its importance to one who is broadly interested in psychopathology.

⁷ See No. 36, Nervous and Mental Disease Monograph Series. Storch: The Primitive Archaic Forms of Inner Experiences and Thought in Schizophrenia.

X

THE ADLERIAN CONCEPT OF THE NEUROSES *

Adler's concept of the neuroses may be said to differ from the concepts of Freud and Jung in its attempt to define their organic bases: not that this concept is absent from either the Freud or the Jung scheme. Freud especially has considered it, but Adler makes the organic basis the basis of his whole consideration of the neurosis, and the starting point of his therapeutic attack. It may be well briefly to recapitulate Adler's views, and to illustrate them in a way that will show just exactly how he does this.

For Adler the fundamental psychological element in the neurosis is the feeling of inferiority, which feeling of inferiority in every case finds in an inferior organ. The neurosis then consists in an effort on the part of the individual to overcome this feeling of inferiority, and its outward signs and symptoms are the manifestations of those dexterities developed to this end. This is the flight to safety, the effort to overcome the feeling of inferiority, and because it becomes the primary object of the neurotic it takes him away from reality on a false path. He spends his life in endeavoring to overcome the feeling of inferiority rather than in contact with reality. This is the fictitious goal of the neurotic.

This concept can be very much better understood if it is considered in connection with and as part of the larger concept of progressive integrations and adaptations as constituting the fundamental and developmental processes. If the psyche is made possible, and in fact is the expression and the end result of all of the organic integrations which have gone to build up the organism, then it must necessarily follow that every defect in this organic machinery must ultimately find its psychological expression. Every defect of integration must offer an obstacle to that orderly development which finally will present a well-rounded, well-balanced capacity for psychological reactions, and such a defect must necessarily, therefore, modify the character make-up of the individual. And the way in which

* Presented at the Eighth Annual Meeting of the American Psychopathological Association, Boston, Mass., May 24, 1917. The Journal of Abnormal Psychology, Vol. XII, No. 3, August, 1917.

that modification takes place must result from the way in which the defect is dealt with. The defect may be side-tracked or circumnavigated, as it were, or it may be assimilated in part or in whole, or it may be so gross as to drag down the individual to its level, or it may, by the concentration of the efforts of the individual in this particular limited area, become the center of supernormal activities, so that the whole gamut from idiocy to genius, at least from their pathological and organic aspects, may thus be traced to organ inferiority.

The concept is a difficult one, and I think I may enlighten it by a further type of illustration which I have found very useful. For example, Adler, in explaining what he means by an inferior organ and the part it plays in the individual psyche would have it that the inferior organ, so to speak, hangs on to its childlike, infantile, inferior, relatively undeveloped ways of pleasure seeking, which, of course, if we understand by pleasure the fulfillment of desire in its broadest way, can practically only mean that the organ hangs on to that sort of capacity to function which only is possible at its stage of development so that, for example, the skin which in the polymorphous perverse period of infancy is the avenue through which all sorts of comforting and organically delicious sensations are transmitted to the baby, may remain inferior, and, therefore, in the adult may continue as a source of organic pleasure out of all proportion to the part which it should play in a properly balanced picture of the functions of the adult considered in their totality. We are familiar, of course, with the exquisite who bathes and perfumes himself and wears silk underwear and all that sort of thing, because he retains an autoerotic gratification in cutaneous stimulations which he should have left behind to have become part of his developmental history, but which he has insisted upon dragging along with him as he grew to adulthood. It is not easy for us to say, and I do not know whether there is any evidence, that such a skin is inferior, but this is the way in which it would be reasoned out from the Adler viewpoint, and if instead of thinking of such a skin as I have described it we think of all the possibilities of cutaneous eruptions, of the various pruritides and so forth, we will begin to understand how skin inferiority may play its part in the later characterological peculiarities of the individual. I suggest for consideration in this particular Sadger's illuminating article in an early number of the *Jahrbuch*.¹

¹ Ueber Haut, Schleimhaut und Muskelerotik.

You will note in studies of this sort that whereas the actual mechanism of the eruption itself may remain more or less hazy that the distribution of the lesions is of exceeding significance, particularly the pruritics, the lesions of a senile eczematous variety and certain neurotic erythemas and the like. Their localization about primary and secondary sexual foci seems to be almost, if not quite conclusive of their intimate psychological affiliations.

Another illustration of the same character: Let us take, for example, the organ of hearing; how might we expect an inferior organ of hearing to react from the Adlerian point of view? In the first place, if the organ of hearing was inferior we would expect that it would focalize the individual's feeling of inferiority; in other words, that his apprehensiveness toward the world of reality, his fear of contact with actual experience, would tend to focalize in the auditory zone, and if we should trace back the development of this particular individual's auditory functioning we should expect that it would disclose a history, as I have already indicated, of hanging on, so to speak, to infantile ways of pleasure seeking. Now let us begin at the beginning and trace the history through according to this theory. We would find a child who is enormously interested in auditory experiences. Perhaps we might find a child who had heard forbidden things in its very first years because of the well-known association in the bedroom of the parents. Later on we might expect to find that such a child expressed his curiosity primarily, of course, sexual curiosity, through his auditory apparatus; that he was always listening and trying to get information from hearing what other people were saying. As he grew to adulthood we might expect such an individual, retaining the same ways of pleasure seeking, to be perhaps interested in hearing obscene stories and jokes. It is to be borne in mind that the ambivalent opposite, the suppression (repression) of auditory stimuli is also a possible type of reaction. Such a person might react to obscene jokes with great emotional resentment. All the while we might find running along hand in hand with such a development a tendency to suspicion of his environment, which would manifest itself by a feeling of fear, apprehension and anxiety, in short of inferiority. If he saw people talking together in an intimate way and could not hear what they said, from that to the belief that they were talking about him would be an inconsiderable step to take. And so you see we are slowly building up here the picture of a

paranoid, with his ideas of suspicion, his delusions of persecution, his hallucinations of hearing. And the hallucinations of hearing of a paranoid in which he hears people say all sorts of disagreeable things to him if interpreted through their symbolic significance will be seen to represent the same pleasure seeking mechanisms that were openly manifested in childhood. This is the sort of reasoning that we have to use to develop such a character type as that found in paranoia on the basis of the Adlerian concepts.

I am reminded in this connection of the observations I made some years ago upon hallucinated persons,² taking them as they came into the hospital, and in looking over the results of those observations I was very much interested to discover that I never found an hallucinated patient with normal sense organs. The ears, for example, showed some evidences of an old otitis media, or in older patients evidences of sclerosis and contraction of the drum membrane, diminished acuity of hearing, etc., etc. Such like evidences were found also in the other sense organs except that in some instances, and this I think also extremely interesting, in which the sense organ that was the particular recipient, so to speak, of the hallucinations was healthy, it could be shown that the stimulus for the hallucinations was derived from another sense organ which was not healthy; in other words, we had the phenomenon of synesthesia, the first sensory change occurring in a diseased sense organ and being manifested as an hallucination in a healthy one. One instance I recall particularly was an hallucination of smell which resulted from the stimulation of a congested and swollen lingual tonsil.

Still bearing in mind the general principle of psychical integrations I think we must accept the Adlerian viewpoint as I have stated. I think Adler himself, especially in his work on organ inferiority, offers a lot of evidence which is inconclusive, not to say flimsy at times, or at least is flimsily presented. It makes no difference, however, as to whether he happens to have presented it well or not, I think the concept must be accepted in the way I have stated it. It is a concept which by no means is limited to the explanation of certain character traits; it is a concept which in its broader significance compasses the whole field of biological development. Child has recently formulated, for example, a theory of physiological individuality in which he defines individuality as all that which may be included under the control of a metabolic or dynamic gradient. Now, of course, the principal

² Hallucinations. *Jour. Nerv. and Ment. Dis.*, November, 1904.

metabolic and the dynamic gradient of the human individual is the central nervous system. We may therefore consider all that individual in him which remains subservient to this centralized authority, and just as a group of cells may spring into activity and throw off the yoke, so to speak, of this central authority, set up a government of their own, develop perhaps their own independent dynamic gradient, and become, therefore, what we call a tumor, which is really from this point of view a separate and, of course, a parasitic individual, so a sense organ, the eye, for example, may do the same thing. An eye which insists upon sticking to lower cultural levels of pleasure seeking, as, for example, the eye of the young man that I recently saw who was arrested because he had fixed a mirror on the end of a stick and went about the street shoving it under women's skirts, a sort of periscopic eye, the eye of such an individual which continues to seek pleasure at such cultural levels we may consider as being in this same way an anarchist in its tendencies towards the total integration, perhaps not so much the eye when we are speaking in psychological terms as what we might better term the eye libido. So, such an individual is suffering, we might say, from tumor of the eye libido. He is suffering because his eye libido cannot be integrated with the rest of his personality and be made subservient to the larger ends of the individual, as a whole, but continues to manifest itself at infantile levels of pleasure seeking. It would be interesting, not only to examine such an eye ophthalmologically for evidences of inferiority, but by the Abderhalden technic.

This is the Adlerian concept as I see it, to me an exceedingly useful one and pragmatically very valuable because it serves to bridge the gap between the organicists and functionalists. As a method of approach to the neurosis I think that it rather tends to lack that capacity for individualizing the patient's symptoms, which is of value. The organic part of the situation is of little or no interest to the patient, and in the way in which I have set it forth here would, in a majority of cases, be incomprehensible. Actual feelings, actual strivings at the psychological level, emotional trends, desires, etc., are the things that the patients can be brought to understand because they actually feel them. They can be brought into consciousness and dealt with, and in this way the approach along more strictly Freudian lines I think is more valuable. The Adlerian concept, however, is a broad formulation which is, to my mind, of great scientific and

philosophic value but not of the same therapeutic value in dealing with the individual because for the most part one has to deal with the capacity for psychological readjustments. The Adlerian concept, on the other hand, constantly reminds us that the capacity for psychological readjustment may depend, in the last analysis, upon some assistance that can be offered from the organic side, a reminder which we should take seriously, quite as seriously as we believe the internists should take our suggestions of psychogenesis.

XI

PHYSICAL BIOLOGY¹

(A Book Review)

BY WILLIAM A. WHITE

Yet Nature is made better by no mean,
But nature makes that mean: so, over that art
Which you say adds to nature, is an art
That nature makes.

Winter's Tale, Act IV, Sc. 4, L. 89.

This exceedingly stimulating and informing book ushers in a new science—the science of Physical Biology, which term the author suggests in contradistinction to Biophysics or “that branch of science which treats of individual life processes” should “be reserved to denote the broader field of the application of physical principles in the study of *life-bearing systems as a whole*.”²

This expression, life-bearing systems as a whole, is the key to the subject matter treated and indicates the breadth of view and thus of necessity the immense material that must come under review in a program based upon such a concept.

In approaching this most comprehensive way of dealing with life the author starts in the first chapter to consider the basic factor of definitions in order to clear the way and leave no misapprehension as to just what he is discussing in the succeeding pages. Definitions are matters of expediency and agreement. Certain pseudo problems of science have owed their origin to the misunderstanding of a problem, supposing it to be a problem of fact when it was only a problem of definition. Because the terms *animal* and *plant* occur in the vocabulary of the biologist he has felt the necessity of establishing precise distinctions between them without realizing that these names

¹ Lotka, Alfred. *Elements of Physical Biology*. Published by the Williams and Wilkins Company, Baltimore, Maryland. *The Psychoanalytic Review*, Vol. XII, No. 3, July, 1925.

² Italics not in original.

are generations old, parceled out by popular consent and by unscientific persons who were not concerned with fine distinctions. The question is not "What *is* green, and what *is* blue?" but, at best, "What shall we agree *to call* green, and blue?" "The truth is, of course, that we may define 'animals' and 'plants' any way we please—as for instance by reserving the term plant for an organism possessing cellulose—but whether such definition is 'correct' or 'satisfactory' is not a question of biological fact, it is a question of expediency." "What difference does it make whether *we call* volvox a plant or an animal? Whether it *is* a plant or an animal is merely a matter of definition, not a question of biological fact." He discusses the definition of life and quotes the ordinary dictionary definition as "the state of living" and Claude Bernard's definition as "the sum total of the phenomena common to all living beings," and compares them to Sidney Smith's definition of an Archdeacon as "a person who performs archidiaconal functions." He does not attempt the definition, but is inclined to take the position of Sir William Bayliss. "If asked to define *life* I should be inclined to do as Poinset, the mathematician did, as related by Claude Bernard: 'If anyone asked me to define *time*, I should reply: Do you know what it is that you speak of? If he said yes, I should say, very well, let us talk about it. If he said no, I should say, very well, let us talk about something else.'" In this same connection he counsels conservatism in the coining and use of such phrases as vital force, and nerve energy, and cautions against the practice of the biologists who, because they have named a vital force, a nerve energy, a mental energy, "entertain the pious hope that in due time they may discover these 'things.'" He thinks there is something radically wrong with such terms because forces and energy are magnitudes and "to define a magnitude and to say how it is measured are one and the same thing." "But who has ever told us how to measure vital force and such like?" That he is openminded about such attempts and appreciates the possibility of unknown factors in such analogies appears later in his discussion of the energy relations of consciousness (Chapter XXXII) in which he considers the possible inaccuracy of the laws of dynamics and the possible influence of factors eliminated from the equations of dynamics—our desires and purposes.

• The enormous importance of a consideration of fundamental postulates, of definitions, of the way we come to see things by considering our own nature and its modifying influence is well illustrated

by his comment on the relative simplicity of chemical systems as contrasted with the structurally complex organic systems. He says: "The reason for the simplicity is to be found in ourselves. It is not a physical phenomenon of the thing observed, but a psychological phenomenon in the observer."

The comprehensiveness of the author's approach to biology by his physical route is indicated in a quotation from Bunge with which he heads his second chapter—Evolution Defined: "Nature must be considered as a whole if she is to be understood in detail." In this chapter he comes to the following definition of evolution: *Evolution is the history of a system undergoing irreversible changes.* The scope of this definition will be understood better if it is remembered that he is primarily engaged in the study of life-bearing systems as a whole: That he understands by evolution of a life-bearing system that it includes both organism and environment: "It is not so much the organism or the species that evolves, but the entire system, species and environment. The two are inseparable," and that life, as Sala puts it, is to be considered as "a system of relations rather than a positive and independent existence."

A very practically important aspect of man's environment consists of those elements that are of immediate necessity for his very existence such as his food, and more indirectly, the various domesticated animals that are useful to him in various ways not only as food, but for work or for supplying some needful product such as leather. We have thus to consider various networks or chains of interrelated species as related to man, such as cattle, grass, clover, corn, leather, fertilizer. As food we have the interspecies relations providing primary, secondary and tertiary food thus: the zostera (eelgrass) of the ocean provides food, not only for certain useless animals considered from this point of view, but to numbers of useful animals that constitute part of the chain that leads to man, namely: starfish, gastropods and crustaceans which in turn are eaten by fish such as the cod and it in turn is eaten by man. The perfectly stupendous loss of foodstuff on the way from the eelgrass to man is evident as is also the complicated predatory interrelations of these various forms of life among themselves, all of which suggests that a more intensive development of aquiculture will be one of the phenomena of a gradual waning of existing sources of food. Shakespeare rather gruesomely expresses these interrelations by saying: "We fat all creatures else to fat us, and we fat ourselves for maggots."

I cannot refrain in passing from noting what appears to me to be quite possibly very significant for a full understanding of the body fluids, particularly the blood. Henderson has said that there "are at least strong indications that the fluids of the highest animals are really descended from sea water" for which statement the comparative composition of blood and sea water gives strong confirmatory evidence.

From the point of view developed in regard to food chains he discusses other aspects of man's environment as cycles in the transference of matter through different structures to and from man. Thus he discusses the water cycle, the organic carbon cycle, the nitrogen cycle, the phosphorus cycle, all in a highly illuminating way to bring out the various aspects of interdependence. "The life contest, then, is primarily a competition for available energy."

It is when he comes to the discussion of consciousness that his material becomes of immediate interest. Here his attitude is exceedingly broad for not only does he attribute consciousness to all living matter, but he is even inclined to go further and say that it is impossible to conclude that nonliving matter lacks it and he is convinced of the soundness of the attempt to establish relations between consciousness and other phenomena. While it is true that if we assign consciousness to nonliving matter it must be so radically different from our own as to transcend our powers of imagination so too must a consciousness attributed to the simpler forms of life such as an amoeba, yes and even to higher types such as a flea or a dog. "When we say that a soap bubble, for example, *tends* to contract under surface tension, or perhaps when we use even less guarded language and say that it is *trying* to contract, our terms are commonly thought reprehensible as being more picturesque than scientific. Yet we ought to be prepared for the conception that the straining of the bubble to contract may not be so fundamentally different a thing from the straining of an amoeba to engulf a food particle, or the straining of a Newton to assimilate a new conception or to solve a problem in philosophy. The two phenomena may be far separated, indeed, upon the scale of evolution, yet they may be two rungs upon the same scale."

It is obvious from this quotation that the author is not afraid to carry the analogies in any direction that will lead to useful thinking nor afraid to abide by the results and assign consciousness, as a certain type of reaction, to any situation, and to ascribe consciousness to that reaction no matter whether the matter involved

be living or not. He says of the functions of science: "All that falls within its mission is to observe phenomena and to describe them and the *relations between them*." It is this function of describing the relations between phenomena that is fundamental and in this sense only does science explain by making comprehensible. He says: "But who should say that the attempt to *establish relations* between consciousness and other phenomena is philosophically unsound?" and adds: "Quite the contrary, the study of the relations between consciousness and other phenomena is not only legitimate, but altogether alluring and full of promise."

Consciousness then must be expressed in terms of relation. The self is then but a sort of reference frame, or a set of such frames, of coördinates. "The thing that counts, in the depiction of the world in *me*, is the position of my *reference frame* relative to the external world."

This broad concept of consciousness, which is as far as possible from the older formulations which accredited it to man alone and which of necessity implied that it was a sort of something that was acquired at a definite period in the natural order as if by a process of grafting, sees in its phenomena a certain type of reaction which allies it with the cosmos and gives it a placement, an orientation similar to other natural phenomena. It recognizes its evolution and the fact that its origin must have been back in simpler and ever simpler states until by implication again its roots must be traceable into the very fundamental nature of things and so allied, not only with all life but with all things. And yet the author is not suffering from the delusion that he has solved the problem of consciousness, but recognizes the possibility "that the equations of dynamics, however perfectly they may picture the course of certain physical events, may fail entirely to reveal or to give expression to an underlying agency that may, in fact, be of fundamental significance. The interference of consciousness in mechanics may be very real, and yet the course of events may *appear* fully determined by the laws of dynamics." He recognizes fully the fact that these various hypotheses may have a certain flavor of anthropomorphism, but wonders whether some sort of anthropomorphism "may not, after all, be in some sense legitimate."

Man becomes, then, not a separate creature that stands outside of nature and looks on or even interferes, he is part and parcel of the cosmos and as well of all the other selves. He says: "Any attempt to establish boundaries between the self and the external world, or,

for the matter of that, between two selves, is not only useless but meaningless." We are thus prepared for the overlapping of egos in fields that are common to them as is well illustrated in his discussion of artificial receptors (microscopes, telephones) and artificial effectors (means of locomotion—the auto, the railway). This interpenetration of egos becomes of great significance because, "with the conflict against other species relegated to the background, man's combat with his own kind has been forced to the center of the stage."

I cannot refrain from interpolating at this point what seems to me of the utmost significance in this matter of the conflict of man with man and his constant attempts to define what is most desirable to perpetuate and his efforts to that end. Keyser says that we have "estranged and objectified the world, and lost the sense that we are of it." The author adds: "It is as if evolution had overshot the mark, as if the race must in some degree retrace its step, and regain something of that impersonal consciousness that now seems to be only the occasional property of a few, who, like Wordsworth, are at times 'unable to think of external things as having external existence, and who commune with all that they see as something not apart from, but inherent in their own immaterial nature.' Perhaps this transfiguration cannot be achieved, but by the race passing through some great cataclysm, out of which a remnant may evolve toward a higher goal. It is a familiar fact in geology that the species which pass on the stock to later eras of evolution are commonly not the main branches nor the most highly developed members of the evolutionary tree. So, also, it may not be the descendants of the now dominant divisions of our species that shall carry on the torch to light the new era, when 'the world shall no longer be beheld as an alien thing, beheld by eyes that are not its own.'³ But this uncertainty cannot be allowed to deter us in such efforts as we may see fit to make to further by our own initiative the progress of the species, according to our best lights."

This comprehensive view of man as a life-bearing system related directly and indirectly, immediately and remotely with his kind, with all animate creation, with the inorganic constituents of the earth, with the cosmos, is refreshing in these days when so many social movements discuss him as if he still occupied the place outside the natural order of events, to which he assigned himself in the Middle Ages and to which he still tends to assign himself, and as if,

³ C. J. Keyser. *The Human Worth of Rigorous Thinking*, 1916, p. 126.

from this vantage ground he possessed the power to dip into and interfere with the natural and law-controlled order of events and even to control them. Two quotations along these lines show the author to possess that quality of imagination without which science is a dry and unstimulating occupation. He says: "For the drama of life is like a puppet show in which stage, scenery, actors and all are made of the same stuff. The players, indeed, 'have their exits and their entrances,' but the exit is by way of translation into the substance of the stage; and each entrance is a transformation scene. So stage and players are bound together in the close partnership of an intimate comedy; and if we would catch the spirit of the piece, our attention must not all be absorbed in the characters alone, but must be extended also to the scene, of which they are born, on which they play their part, and with which, in a little while, they merge again." And, "Since we are of earth, ours also is the same origin. The hand that writes these words and the eye that reads them alike are composed of the selfsame atoms that came into being, ages and ages ago, in the young sun. Far, far more wonderful than any dream of old mythology is the story of our creation. Thus was the birth of man prepared in the grey dawn of time; thus the metal of his frame compounded in the flaming furnace of a star."

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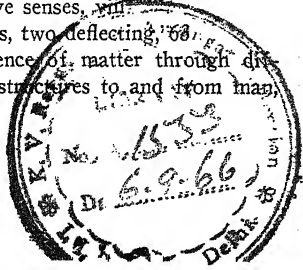
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